

*First Semi-Annual 2012 Groundwater Monitoring and  
LNAPL Removal Report  
Terminal 4 Slip 3 Upland Facility  
Portland, Oregon*

Prepared for:  
Port of Portland

August 6, 2012  
1007-03



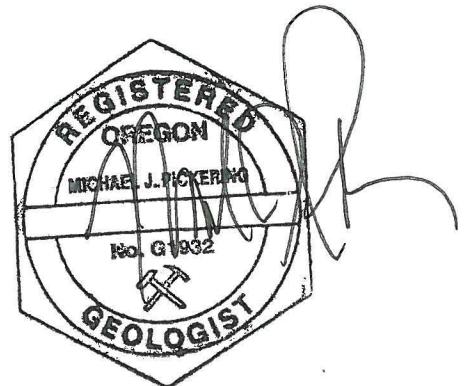
Ash Creek Associates, Inc.  
Environmental and Geotechnical Consultants

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## **1.0 Introduction**

This semi-annual report (Report) describes the results of groundwater monitoring and light non-aqueous phase liquid (LNAPL) monitoring and removal at the Terminal 4 Slip 3 Upland Facility (the Facility; see Figure 1) during the first half of 2012. This work was completed in accordance with the *LNAPL Removal, Groundwater Monitoring, and Contingency Plan* (Monitoring Plan; BBL/Ash Creek/Newfields, 2005b) and the *Site Closure Evaluation and Recommendation – Groundwater* (Ash Creek, 2009). The monitoring activities are part of a required remedial action for the Facility defined in the *Record of Decision* (ROD; Oregon Department of Environmental Quality [DEQ], 2003) and the *Explanation of Significant Difference* (DEQ, 2004). The Monitoring Plan was prepared pursuant to Attachment C (Scope of Work [SOW]) Item II.I of the *Consent Judgment* (Circuit Court of Oregon, 2004) between the DEQ and the Port of Portland (Port).

### **1.1 Scope**

The specific tasks that are described in this Report include:

- Groundwater monitoring conducted in June 2012, including collection of groundwater levels for estimating hydraulic gradients and groundwater samples for chemical analysis; and
- LNAPL monitoring and recovery from January through June 2012.

### **1.2 Report Organization**

The report text provides background information on the Facility (Section 2), the results of the LNAPL removal program (Section 3), and the results of the groundwater monitoring program (Section 4). Supporting information is provided in the tables, figures, and appendices. Appendix A presents the field and quality assurance/quality control (QA/QC) procedures; field notes from the groundwater and LNAPL monitoring events are also included in Appendix A. Appendix B contains the data QA/QC review and analytical laboratory report. LNAPL thickness and removal volume trend plots are included in Appendix C. Appendix D contains chemical trend plots.

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## **2.0 Background**

### **2.1 Facility Location and Description**

The Facility is part of the Port Marine Terminal 4 located at 11040 North Lombard Street in Portland, Oregon (Figure 1). Terminal 4 encompasses about 260 acres along the eastern bank of the Willamette River, near river mile 5. Figure 2 provides a Facility vicinity plan showing the boundaries of the Facility in relation to surrounding properties, and Figure 3 shows a Facility plan. The Facility is generally bounded on the north

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by Terminal 4 Slip 1 (T4S1), on the west by the Willamette River, on the south by the Toyota Automobile Receiving Area, and on the east by the former Union Pacific Railroad (UPRR) tank farm facility.

The Facility is generally flat at an average elevation of about 35 feet above mean sea level (MSL). The river water elevation is typically less than 10 feet above MSL and is subject to a mean tidal range of about 2 feet (Hart Crowser, 2000). Immediately east of the Facility, the ground surface rises at about a 15-percent grade to an elevation of about 100 feet.

## **2.2 Geology**

Lithologic logs and geologic cross-sections indicate that the Facility is underlain by approximately 10 to 30 feet of sandy fill. The sandy fill has been described as fine- to medium-grained sand with some coarse sand and fine gravel, and relatively few fines (BBL/Ash Creek/Newfields, 2006; Hart Crowser, 2000). The sandy fill is underlain by alluvium. A laterally continuous layer of silt makes up the top of the alluvium. The silt varies in thickness from approximately 2 to 5 feet or more. This silt layer appears to be hummocky with a general slope towards the river; the silt layer rises sharply to the surface beyond the eastern boundary of the Facility and a "mound" in the silt is present in the northwestern portion of the Facility. Below the silt layer, the alluvium is comprised of layers of silt, sandy silt, silty sand, and sand, which do not appear to be laterally continuous for significant distances.

## **2.3 Hydrogeology**

Depth to shallow groundwater in the central portion of the Facility has generally ranged from 12 to 24 feet below ground surface (bgs) during the past 10 years (BBL/Ash Creek/Newfields, 2006). Potentiometric maps from periodic water level measurements collected during the past 10 years indicate a general site-wide gradient towards the river (BBL/Ash Creek/Newfields, 2006). However, gradients are highly variable in the center portion of the Facility, often indicating groundwater flow directions away from the river or to the north or south.

Older wells installed at the Facility (designated by "MW") are screened within both the sandy fill and the alluvial unit (Century West, 1994). Groundwater levels drop below the sandy fill in many of these wells during the dry season and times when river levels are low (Hart Crowser, 2000). Groundwater levels measured in shallow wells screened only within the sandy fill (e.g., HC-16 and HC-23) are several feet higher than in adjacent MW wells, suggesting the silty layer at the top of the alluvial unit acts to separate two groundwater zones: one above and one below the silt layer. The upper groundwater zone is "perched" on the silt layer.



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## **2.4 Remedial Action Status**

The *Consent Judgment* requires remedial action at the Facility consisting of the following elements:

- 1) Excavation of soil Hot Spots;
- 2) Manual recovery of LNAPL from groundwater wells;
- 3) Excavation of riverbank soils;
- 4) Capping of certain surface soil containing polycyclic aromatic hydrocarbons (PAHs);
- 5) Implementation of a Contaminated Media Management Plan (CMMP);
- 6) Source control actions to address pencil pitch in surface soils; and
- 7) Compliance monitoring.

This Report presents the status of ongoing Items 2 and 7. Item 1 and a portion of Item 6 (Head of Slip 3 source control measure) were completed in 2009. The remainder of Item 6 (riverbank and South Slip Bank source control measures) will be addressed in a future action. Item 4 will be completed in a future action in association with site development. The CMMP (Item 5) is planned to be finalized in 2012. Item 3 was completed in 2004 and is identified as the "BEBRA". In fall 2008, the Head of Slip 3 cap was installed, a portion of which overlays the BEBRA. The Head of Slip 3 cap contains an organoclay layer that adsorbs petroleum hydrocarbons. That layer is downgradient of the BEBRA monitoring wells.

## **3.0 LNAPL Monitoring and Removal Program**

The SOW of the *Consent Judgment* (Circuit Court of Oregon, 2004) requires periodic removal of LNAPL from existing wells. The following describes the results of the LNAPL monitoring and removal program for the first half of 2012. A more detailed description of the procedures used is provided in Appendix A.

### **3.1 LNAPL Monitoring and Removal**

During each LNAPL monitoring event, the LNAPL was removed from wells MW-19 and MW-20 by manually draining the skimmers and reinstalling the skimmers in the wells (after adjusting the cables to account for changes in water table elevation). If additional product was present in the wells following skimmer removal (i.e., if the volume of product encountered in the well was larger than the storage capacity of the skimmer), the product was manually removed using a peristaltic pump before the skimmer was reinstalled. LNAPL was removed manually from wells HC-10, BE-4, MW-15, and MW-17 (as necessary). The results of each LNAPL monitoring event (i.e., product removal volumes) are summarized in Table 1.

The *Site Closure Evaluation and Recommendation – Groundwater* (Ash Creek, 2009) specified that LNAPL monitoring/removal will continue as long as the total recovery rate is greater than 50 gallons per year. After

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the total recovery rate falls below 50 gallons per year, individual wells will continue in the LNAPL monitoring/removal program until: (1) the trend in recovery rate is downward; or (2) the recovery rate is less than 5 gallons per year.

Approximately 31 gallons of LNAPL were removed from the regularly monitored wells during the first six months of 2012 (0.0 gallon from BE-4, 0.4 gallons from MW-15, 1.15 gallons from HC-10, 5.1 gallons from MW-17, 5.2 gallons from MW-19, and 19 gallons from MW-20; see Table 2 and Figure 4).

The LNAPL is collected in a Department of Transportation (DOT)-approved 55-gallon drum for temporary storage pending off-site recycling.

### **3.2 BEBRA Observations**

The Slip is inspected for the presence of sheen in the area of the BEBRA during each LNAPL monitoring event. Sheens were not observed on water in the Slip from January through June 2012.

LNAPL has not been observed in the wells installed within the BEBRA area (i.e., wells BE-1, BE-3, and BE-5).

## **4.0 Groundwater Monitoring**

On June 11, 2012, water levels were measured in the monitoring wells included in the groundwater elevation monitoring network. On June 11 and 12, 2012, groundwater samples were collected from the monitoring wells included in the groundwater sampling/analysis monitoring network. The groundwater elevation and sampling/analysis well networks are defined in the Monitoring Plan and listed below in Sections 4.1 and 4.2, respectively. Please refer to Appendix A for a detailed discussion of the field and sampling procedures.

### **4.1 Groundwater Level Measurements**

Depths to groundwater and LNAPL (if present) were measured in wells HC-5, HC-10, HC-19, HC-21, HC-23, HC-24, MW-8, MW-14, MW-15, MW-17, MW-19, MW-20, BE-1, BE-3, BE-4, and BE-5. Water levels were measured for the purpose of determining groundwater elevations and gradients using an electronic interface probe. Measured depths to groundwater and estimated groundwater elevations are summarized in Table 3. Groundwater elevations are shown on Figure 5.



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## **4.2 Groundwater Sampling**

Groundwater samples were collected from wells HC-5, HC-19, HC-21, HC-24, BE-1, BE-3, and BE-5 (in accordance with the Monitoring Plan, samples were not collected from well BE-4 due to the presence of LNAPL).

**Purging.** After depths to groundwater were measured, the wells were purged using a peristaltic pump. Wells BE-1, BE-3, and BE-5 purged dry and were allowed to recover before sampling. Sampling in these wells was conducted over a period of two days, as requested by DEQ, in an attempt to collect sufficient volume to complete the chemical analyses for the monitoring program.

**Sample Collection.** After purging was completed, the wells were sampled. Groundwater samples were submitted under chain-of-custody (COC) protocols to TestAmerica Laboratories of Beaverton, Oregon for chemical analyses. Samples were collected and handled in accordance with the procedures presented in Appendix A.

## **4.3 Chemical Analytical Results**

Groundwater samples collected from the monitoring wells were analyzed for PAHs using U.S. Environmental Protection Agency (EPA) Method 8270-SIM, and for diesel- and heavy-oil-(residual)-range petroleum hydrocarbons (TPH-Dx) using Northwest Total Petroleum Hydrocarbons (NWTPH-Dx) Method with silica gel cleanup. Table 4 lists the results of the June 2012 groundwater sample analyses and includes the results from previous groundwater sampling events. For reference, the ROD compliance criteria have been included in the table. Figure 6 presents the results for total petroleum hydrocarbons (TPH) and total PAHs for each sampled well. The data quality review and the laboratory report are included in Appendix B.

In accordance with the Monitoring Plan, silica gel cleanup is completed on samples analyzed for TPH-Dx (using EPA Method 3630M). However, prior to 2006, the analytical laboratory did not complete silica gel cleanup on the samples collected from the "BE" wells, due to insufficient sample volume. Subsequent results of TPH-Dx analyses on samples from these wells (which have included a silica gel cleanup) have shown a significant decrease in concentrations, supporting that earlier results included organic interference.

Due to limited water in the "BE" wells, it is consistently difficult to obtain sufficient sample volumes to complete all of the analyses of the Monitoring Plan. Therefore, it was recommended to and accepted by the DEQ that sample collection would occur over a 2-day period to maximize the volume of groundwater for sample collection from these wells. In addition, priority was given to completing analysis for PAHs, followed by completing analysis for TPH.

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## 4.4 Evaluation of First Semi-Annual Results

Plots of LNAPL thickness and recovery versus time are included in Appendix C. Table 2 summarizes the LNAPL recovery from January through June 2012. Plots of chemical concentrations versus time for selected chemicals and wells are included in Appendix D. Results for BE-5 are plotted together with BE-2.

**LNAPL Recovery.** LNAPL was not observed in any of the wells within the BEBRA area (wells BE-1, BE-3, and BE-5) during the first half of 2012. Product levels were monitored and product was removed as appropriate from wells BE-4, HC-10, MW-15, MW-17, MW-19, and MW-20 on a weekly to monthly schedule, as described in Section 3.1. Approximately 31 gallons of product were removed during the first six months of 2012. The greatest total LNAPL recovered from any single well in first half of 2012 was approximately 19 gallons (MW-20), compared to the compliance criterion of 5 gallons per year. Overall, the total volume for the first half of 2012 was generally consistent with historical LNAPL recovery at the Facility.

**BEBRA Compliance Well Analytical Results.** BAA and BAP exceeded the compliance criterion in well BE-5 (0.16 and 0.21 micrograms per liter [ $\mu\text{g}/\text{L}$ ] detected versus ROD criterion of 0.027 and 0.014  $\mu\text{g}/\text{L}$ , respectively) at concentrations consistent with historical trends. The ROD compliance criteria apply to groundwater at the point of compliance (POC) at the groundwater/surface water interface. The wells are installed upgradient from the interface. Furthermore, the Head of Slip 3 cap (containing a treatment medium to remove petroleum hydrocarbons) is present between the wells and Slip 3. Wells BE-1 and BE-3 were non-detect for PAHs and TPH as diesel during the event.

Well BE-5 was installed in 2009 to replace BE-2, which was destroyed during construction of the Head of Slip 3 cap. The analytical modeling results for data from BE-2 indicated that the data are likely biased high and suggest that chemical concentrations in BE-2 were likely at or below concentrations that meet compliance levels at the POC (Ash Creek, 2009). The DEQ-approved compliance criteria for BE-5 are as follows:

- 1) Contaminants of concern are below compliance levels for two successive rounds of monitoring; or
- 2) If detected above compliance levels in Table 1, concentrations of BAA and BAP are each less than 1  $\mu\text{g}/\text{L}$  (a conservative sentinel well equivalent compliance level determined from modeling) and a downward trend is established for four successive rounds of sampling.

The results for BE-5 plotted together with BE-2 (Appendix D) demonstrate a downward trend, thereby meeting the criteria for Item 2.

## 4.5 Conclusions and Recommendations

The first semi-annual sampling event of 2012 occurred on June 11 and 12, 2012. Based on results to date, compliance criteria have been met except as follows:

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- In the first half of 2012, LNAPL recovery from three wells (MW-17, MW-19, and MW-20) was greater than the individual well compliance criterion of 5 gallons per year.

Groundwater sampling in the BEBRA area will be terminated when all of the following are achieved:

- 1) LNAPL removal has been terminated;
- 2) Concentrations of chemicals analyzed are below compliance levels at the POC (using the sentinel wells as surrogates for the POC) for a continuous period of at least one year or per the criteria for BE-5 noted above in Section 4.4;
- 3) There is no sheen or LNAPL at the POC; and
- 4) Concentration trends in monitoring wells are stable or declining for a continuous period of at least three years.

Items 2, 3, and 4 have been achieved. Quarterly groundwater sampling was completed from 2005 through 2010 followed by three rounds of semi-annual groundwater sampling. The concentration trends for all wells are stable or demonstrate a downward trend. The concentration trend for the BEBRA compliance well (BE-5) demonstrates a downward trend and has met the compliance criteria noted above. The Port recommends no further groundwater sampling at the Facility. LNAPL removal will continue until the compliance criteria have been met. The LNAPL removal results will be presented in the quarterly progress reports.



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## **5.0 References**

- Ash Creek, 2009. *Site Closure Evaluation and Recommendation – Groundwater, Terminal 4 Slip 3 Upland Facility.* May 14, 2009.
- BBL/Ash Creek/Newfields, 2005a. *Construction Completion Report, Bank Excavation and Backfill Remedial Action.* March 1, 2005.
- BBL/Ash Creek/Newfields, 2005b. *LNAPL Removal, Groundwater Monitoring, and Contingency Plan, Terminal 4 Slip 3 Upland Facility.* June 16, 2005.
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- Century West, 1994. *Remedial Investigation Report, Terminal 4.* January 1994.
- Circuit Court of Oregon, Multnomah County, 2004. *Consent Judgment – State of Oregon v. Port of Portland.* October 7, 2004.
- DEQ, 2003. *Record of Decision, Port of Portland Terminal 4 Slip 3 Upland.* April 21, 2003.
- DEQ, 2004. *Explanation of Significant Difference, Port of Portland Terminal 4 Slip 3 Upland Facility.* September 1, 2004.
- Hart Crowser, 2000. *Remedial Investigation Report, Terminal 4 Slip 3 Upland, Port of Portland, Portland, Oregon.* January 21, 2000.



TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-1</b> (29.93)	27-Aug-2003	22.35	21.69	0.66	8.17	0.50	0.50	0.04
	3-Sep-2003	21.98	21.81	0.17	8.10	0.25	0.75	< 0.01
	11-Sep-2003	21.84	21.82	0.02	8.11	Trace	0.75	< 0.01
	17-Sep-2003	22.00	21.92	0.08	8.00	Trace	0.75	< 0.01
	30-Sep-2003	21.88	21.81	0.07	8.11	Trace	0.75	0.01
	14-Oct-2003	21.03	21.00	0.03	8.93	Trace	0.75	0.01
	29-Oct-2003	21.93	21.85	0.08	8.07	0.25	1.00	0.00
	13-Nov-2003	21.95	21.93	0.02	8.00	Trace	1.00	0.00
	26-Nov-2003	21.84	21.83	0.01	8.10	Trace	1.00	< 0.01
	24-Dec-2003	21.05	21.04	0.01	8.89	Trace	1.00	0.01
	21-Jan-2004	20.92	20.89	0.03	9.04	Trace	1.00	0.01
	25-Feb-2004	21.39	20.57	0.82	9.27	0.50	1.50	0.01
	10-Mar-2004	21.22	20.91	0.31	8.99	0.15	1.65	0.01
	24-Mar-2004	21.45	20.90	0.55	8.97	0.30	1.95	0.01
<b>MW-2</b> (30.05)	27-Aug-2003	19.73	19.17	0.56	10.82	0.50	0.50	0.02
	3-Sep-2003	19.41	19.29	0.12	10.75	0.10	0.60	0.01
	11-Sep-2003	19.44	19.38	0.06	10.66	0.10	0.70	0.01
	17-Sep-2003	19.59	19.49	0.10	10.55	0.10	0.80	0.02
	30-Sep-2003	19.46	19.38	0.08	10.66	0.10	0.90	0.01
	14-Oct-2003	19.71	19.56	0.15	10.47	0.10	1.00	0.01
	29-Oct-2003	19.69	19.55	0.14	10.48	0.25	1.25	0.00
	13-Nov-2003	19.65	19.63	0.02	10.42	Trace	1.25	0.00
	26-Nov-2003	19.51	19.50	0.01	10.55	Trace	1.25	< 0.01
	24-Dec-2003	18.47	18.34	0.13	11.70	Trace	1.25	0.02
	30-Dec-2003	18.50	18.40	0.10	11.64	0.10	1.35	0.03
	9-Jan-2004	18.30	17.95	0.35	12.06	0.10	1.45	0.01
	15-Jan-2004	18.19	17.88	0.31	12.14	0.10	1.55	0.01
	21-Jan-2004	18.10	17.95	0.15	12.08	0.10	1.65	0.01
	29-Jan-2004	18.20	17.70	0.50	12.30	0.20	1.85	0.01
	3-Feb-2004	18.20	17.71	0.49	12.29	0.20	2.05	0.01
	12-Feb-2004	18.34	17.81	0.53	12.18	0.30	2.35	0.02
	18-Feb-2004	18.30	17.84	0.46	12.16	0.30	2.65	< 0.01
	25-Feb-2004	17.98	17.85	0.13	12.19	0.10	2.75	< 0.01
	3-Mar-2004	18.10	18.00	0.10	12.04	Trace	2.75	< 0.01
	10-Mar-2004	18.15	18.03	0.12	12.01	0.03	2.78	< 0.01
	18-Mar-2004	18.45	18.12	0.33	11.89	0.20	2.98	0.01
	24-Mar-2004	18.60	18.15	0.45	11.85	0.25	3.23	0.01
	1-Apr-2004	18.55	18.00	0.55	11.99	0.30	3.53	0.01
<b>MW-3</b> (30.09)	27-Aug-2003	20.85	20.82	0.03	9.27	Trace	Trace	< 0.01
	3-Sep-2003	20.91	20.89	0.02	9.20	Trace	Trace	0.01
	11-Sep-2003	20.94	20.92	0.02	9.17	Trace	Trace	0.01
	17-Sep-2003	21.04	21.00	0.04	9.09	Trace	Trace	0.01
	30-Sep-2003	19.89	19.85	0.04	10.24	Trace	Trace	0.01
	14-Oct-2003	21.95	21.83	0.12	8.25	Trace	Trace	0.01
	29-Oct-2003	21.02	21.00	0.02	9.09	Trace	Trace	0.00
	13-Nov-2003	21.07	21.06	0.01	9.03	Trace	Trace	0.00
	26-Nov-2003	21.00	20.99	0.01	9.10	Trace	Trace	< 0.01
	24-Dec-2003	19.85	19.84	0.01	10.25	Trace	Trace	< 0.01
	21-Jan-2004	19.32	19.28	0.04	10.81	Trace	Trace	0.01
	25-Feb-2004	19.15	19.13	0.02	10.96	NA	Trace	0.02
	24-Mar-2004	19.86	19.80	0.06	10.28	NA	Trace	0.06
<b>MW-8</b> (31.13)	27-Aug-2003	20.38	NP	0.00	10.75	0.00	0.00	0.00
	3-Sep-2003	20.45	NP	0.00	10.68	0.00	0.00	0.00
	11-Sep-2003				Not Accessible			
	17-Sep-2003				Not Accessible			
	30-Sep-2003				Not Accessible			
	14-Oct-2003				Not Accessible			
	29-Oct-2003				Not Accessible			
	13-Nov-2003	21.15	NP	0.00	9.98	0.00	0.00	0.00
	26-Nov-2003	21.05	NP	0.00	10.08	0.00	0.00	0.00
	24-Dec-2003	19.18	NP	0.00	11.95	0.00	0.00	0.00
	21-Jan-2004	18.70	NP	0.00	12.43	0.00	0.00	0.00
	25-Feb-2004	15.69	NP	0.00	15.44	0.00	0.00	0.00
	24-Mar-2004	16.66	NP	0.00	14.47	0.00	0.00	0.00
	14-Jan-2005	20.60	NP	0.00	10.53	0.00	0.00	0.00
	28-Jan-2005	20.25	20.23	0.02	10.90	0.00	0.00	0.02
	25-Feb-2005	20.52	NP	0.00	10.61	0.00	0.00	0.00
	25-Mar-2005	20.88	20.88	0.00	10.25	0.00	0.00	0.00
	30-Apr-2005	20.20	NP	0.00	10.93	0.00	0.00	0.00
	31-May-2005	19.40	NP	0.00	11.73	0.00	0.00	0.00
	24-Jun-2005	19.67	NP	0.00	11.46	0.00	0.00	0.00

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-8</b> <i>(continued)</i>	29-Jul-2005	20.22	NP	0.00	10.91	0.00	0.00	0.00
	26-Aug-2005	20.67	NP	0.00	10.46	0.00	0.00	0.00
	24-Sep-2005	21.10	NP	0.00	10.03	0.00	0.00	0.00
	21-Oct-2005	21.25	NP	0.00	9.88	0.00	0.00	0.00
	28-Nov-2005	20.89	NP	0.00	10.24	0.00	0.00	0.00
	3-Jan-2006	17.45	NP	0.00	13.68	0.00	0.00	0.00
	17-Feb-2006	15.35	NP	0.00	15.78	0.00	0.00	0.00
	19-Sep-2006	21.06	NP	0.00	10.07	0.00	0.00	0.00
	13-Dec-2006	18.73	NP	0.00	12.40	0.00	0.00	0.00
	29-Mar-2007	15.71	NP	0.00	15.42	0.00	0.00	0.00
	27-Jun-2007	19.26	NP	0.00	11.87	0.00	0.00	0.00
	18-Sep-2007	20.99	NP	0.00	10.14	0.00	0.00	0.00
	6-Dec-2007	--	--	--	--	--	--	--
	10-Mar-2008	17.19	SHEEN	0.00	13.94	0.00	0.00	0.00
	12-Jun-2008	16.92	NP	0.00	14.21	0.00	0.00	0.00
	8-Sep-2008	20.53	NP	0.00	10.60	0.00	0.00	0.00
	29-Dec-2008	Unable to Gauge; Under Large Puddle of Water						
	10-Mar-2009	19.70	NP	0.00	11.43	0.00	0.00	0.00
	4-Jun-2009	18.41	NP	0.00	12.72	0.00	0.00	0.00
	9-Sep-2009	21.05	NP	0.00	10.08	0.00	0.00	0.00
	15-Dec-2009	Unable to Gauge; Under Large Puddle of Water						
<b>MW-10</b>	11-Mar-2010	18.83	NP	0.00	12.3	0.00	0.00	0.00
	8-Jun-2010	15.71	NP	0.00	15.42	0.00	0.00	0.00
	16-Sep-2010	20.28	20.27	0.01	10.86	0.00	0.00	0.00
	15-Dec-2010	15.59	NP	0.00	15.54	0.00	0.00	0.00
	9-Jun-2011	14.84	NP	0.00	16.29	0.00	0.00	0.00
	1-Dec-2011	20.06	NP	0.00	11.07	0.00	0.00	0.00
	11-Jun-2012	15.62	NP	0.00	15.51	0.00	0.00	0.00
	27-Aug-2003	18.72	18.68	0.04	11.50	Trace	Trace	0.04
	3-Sep-2003	18.83	18.75	0.08	11.42	Trace	Trace	0.02
	11-Sep-2003	19.12	19.04	0.08	11.13	Trace	Trace	0.01
<b>MW-13</b>	17-Sep-2003	19.22	19.15	0.07	11.02	Trace	Trace	0.01
	30-Sep-2003	19.18	19.12	0.06	11.05	Trace	Trace	0.01
	14-Oct-2003	19.77	19.71	0.06	10.46	Trace	Trace	0.01
	29-Oct-2003	19.37	19.31	0.06	10.86	Trace	Trace	0.00
	13-Nov-2003	19.35	19.32	0.03	10.86	Trace	Trace	0.00
	26-Nov-2003	19.20	19.19	0.01	10.99	Trace	Trace	< 0.01
	24-Dec-2003	16.38	NP	0.00	13.80	0.00	Trace	0.00
	21-Jan-2004	16.04	NP	0.00	14.14	0.00	Trace	0.00
	25-Feb-2004	14.18	NP	0.00	16.00	0.00	Trace	0.00
	24-Mar-2004	14.35	NP	0.00	15.83	0.00	Trace	0.00
	27-Aug-2003	18.74	NP	0.00	12.75	0.00	0.00	0.00
	3-Sep-2003	18.79	NP	0.00	12.70	0.00	0.00	0.00
	11-Sep-2003	19.18	NP	0.00	12.31	0.00	0.00	0.00
<b>MW-14</b>	17-Sep-2003	19.25	NP	0.00	12.24	0.00	0.00	0.00
	30-Sep-2003	19.01	NP	0.00	12.48	0.00	0.00	0.00
	14-Oct-2003	19.52	NP	0.00	11.97	0.00	0.00	0.00
	29-Oct-2003	19.40	NP	0.00	12.09	0.00	0.00	0.00
	13-Nov-2003	19.65	NP	0.00	11.84	0.00	0.00	0.00
	26-Nov-2003	19.50	NP	0.00	11.99	0.00	0.00	0.00
	24-Dec-2003	17.97	NP	0.00	13.52	0.00	0.00	0.00
	21-Jan-2004	17.47	NP	0.00	14.02	0.00	0.00	0.00
	25-Feb-2004	14.61	NP	0.00	16.88	0.00	0.00	0.00
	24-Mar-2004	15.91	NP	0.00	15.58	0.00	0.00	0.00
	27-Aug-2003	22.23	17.36	4.87	13.42	0.25	0.25	0.10
	3-Sep-2003	21.05	19.99	1.06	11.21	0.10	0.35	0.20
	11-Sep-2003	21.31	20.21	1.10	10.99	Trace	0.35	0.10
	17-Sep-2003	21.42	20.33	1.09	10.87	1.00	1.35	0.11
<b>MW-15</b>	30-Sep-2003	23.11	19.71	3.40	11.24	1.50	2.85	0.19
	14-Oct-2003	23.01	19.70	3.31	11.26	1.50	4.35	0.14
	29-Oct-2003	20.60	20.58	0.02	10.74	Trace	4.35	0.00
	13-Nov-2003	20.79	20.73	0.06	10.58	0.10	4.45	0.00
	26-Nov-2003	20.46	20.15	0.31	11.14	0.10	4.55	0.02
	10-Dec-2003	20.51	20.42	0.09	10.89	0.10	4.65	0.01
	24-Dec-2003	19.05	NP	0.00	12.27	0.00	4.65	0.00
	21-Jan-2004	17.20	17.19	0.01	14.13	Trace	4.65	< 0.01
	25-Feb-2004	15.51	15.47	0.04	15.85	0.00	4.65	0.04
	24-Mar-2004	14.97	14.90	0.07	16.41	0.00	4.65	0.07
	14-Jan-2005	21.60	20.00	1.60	11.14	Trace	4.65	1.60
	21-Jan-2005	--	--	--	--	--	4.65	--
	28-Jan-2005	20.27	19.00	1.27	12.18	Trace	4.65	< 0.10
	4-Feb-2005	--	19.55	--	--	Trace	4.65	< 0.10
	11-Feb-2005	19.62	19.61	0.01	11.71	Trace	4.65	0.01
	18-Feb-2005	19.64	19.64	0.00	11.68	Trace	4.65	0.00

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-14</b> <i>(continued)</i>	25-Feb-2005	20.03	20.03	0.00	11.29	Trace	4.65	0.00
	25-Mar-2005	20.32	20.32	0.00	11.00	0.00	4.65	0.00
	30-Apr-2005	--	--	--	--	--	4.65	--
	13-May-2005	19.25	NP	0.00	12.07	0.00	4.65	0.00
	31-May-2005	18.80	18.80	0.00	12.52	0.00	4.65	0.00
	24-Jun-2005	18.75	18.70	0.05	12.61	0.00	4.65	0.00
	29-Jul-2005	19.92	NP	0.00	11.40	0.00	4.65	0.00
	26-Aug-2005	--	--	--	--	--	4.65	--
	24-Sep-2005	20.52	NP	0.00	10.80	0.00	4.65	0.00
	21-Oct-2005	20.70	NP	0.00	10.62	0.00	4.65	0.00
	28-Nov-2005	20.20	NP	0.00	11.12	0.00	4.65	0.00
	3-Jan-2006	17.98	NP	0.00	13.34	0.00	4.65	0.00
	17-Feb-2006	--	15.65	--	--	--	4.65	--
	19-Sep-2006	20.43	NP	0.00	10.89	0.00	4.65	0.00
	13-Dec-2006	18.38	NP	0.00	12.94	0.00	4.65	0.00
	29-Mar-2007	17.03	17.01	0.02	14.31	0.00	4.65	0.02
	27-Jun-2007	19.28	18.90	0.38	12.38	2.50	7.15	0.01
	18-Sep-2007	20.46	20.41	0.05	10.90	0.00	7.15	0.05
	6-Dec-2007	15.75	15.75	0.00	15.57	0.00	7.15	0.00
	10-Mar-2008	17.55	SHEEN	0.00	13.77	0.00	7.15	0.02
	12-Jun-2008	15.85	15.80	0.05	15.51	0.00	7.15	0.05
	8-Sep-2008	Well inadvertently not gauged during groundwater monitoring event.						
	29-Dec-2008	13.51	13.50	0.01	17.82	0.00	7.15	0.01
	10-Mar-2009	19.02	19.01	0.01	12.31	0.00	7.15	0.01
	4-Jun-2009	18.26	FILM ON PROBE	0.00	13.06	0.00	7.15	0.00
	9-Sep-2009	20.61	20.60	0.00	10.71	0.00	7.15	0.01
	15-Dec-2009	Unable to Gauge; Under Large Puddle of Water						
	11-Mar-2010	18.08	NP	0.00	13.24	0.00	7.15	0.00
	8-Jun-2010	17.07	NP	0.00	14.25	0.00	7.15	0.00
	16-Sep-2010	19.63	NP	0.00	11.69	0.00	7.15	0.00
	13-Dec-2010	15.16	NP	0.00	16.16	0.00	7.15	0.00
	9-Jun-2011	14.99	NP	0.00	16.33	0.00	7.15	0.00
	1-Dec-2011	19.68	NP	0.00	11.64	0.00	7.15	0.00
	11-Jun-2012	16.48	NP	0.00	14.84	0.00	7.15	0.00
<b>MW-15</b> <i>(31.57)</i>	27-Aug-2003	19.83	16.23	3.60	14.94	0.00	0.00	0.00
	3-Sep-2003	17.16	16.41	0.75	15.08	0.50	0.50	0.04
	11-Sep-2003	16.98	16.63	0.35	14.90	0.10	0.60	0.02
	17-Sep-2003	17.07	16.77	0.30	14.77	0.30	0.90	0.02
	30-Sep-2003	17.00	16.71	0.29	14.83	0.40	1.30	0.03
	14-Oct-2003	17.74	17.31	0.43	14.21	0.30	1.60	0.02
	29-Oct-2003	17.98	17.50	0.48	14.02	0.50	2.10	0.01
	13-Nov-2003	18.42	18.13	0.29	13.41	0.10	2.20	0.00
	19-Nov-2003	18.10	17.92	0.18	13.63	0.20	2.40	0.02
	26-Nov-2003	18.07	17.88	0.19	13.67	0.10	2.50	< 0.01
	3-Dec-2003	17.19	17.12	0.07	14.44	Trace	2.50	0.02
	10-Dec-2003	18.20	18.10	0.10	13.46	0.10	2.60	0.01
	24-Dec-2003	15.74	15.59	0.15	15.96	Trace	2.60	0.02
	9-Jan-2004	15.86	15.66	0.20	15.89	0.10	2.70	< 0.01
	21-Jan-2004	15.30	15.22	0.08	16.34	Trace	2.70	0.01
	3-Feb-2004	15.69	15.60	0.09	15.96	0.00	2.70	0.09
	18-Feb-2004	14.56	14.53	0.03	17.04	0.00	2.70	0.03
	25-Feb-2004	14.11	14.10	0.01	17.47	0.00	2.70	0.01
	24-Mar-2004	14.72	NP	0.00	16.85	0.00	2.70	0.00
	14-Jan-2005	18.25	17.50	0.75	13.99	0.10	2.80	0.10
	21-Jan-2005	17.70	17.15	0.55	14.36	0.50	3.30	0.10
	28-Jan-2005	17.39	17.17	0.22	14.38	0.05	3.35	0.06
	4-Feb-2005	17.38	17.21	0.17	14.34	0.15	3.50	0.01
	11-Feb-2005	17.20	17.09	0.11	14.47	0.05	3.55	0.09
	18-Feb-2005	17.23	17.11	0.12	14.45	0.05	3.60	0.04
	25-Feb-2005	17.42	17.35	0.07	14.21	0.00	3.60	0.07
	4-Mar-2005	17.61	17.51	0.10	14.05	0.20	3.80	0.01
	11-Mar-2005	17.55	17.53	0.02	14.04	0.00	3.80	0.02
	25-Mar-2005	18.05	17.99	0.06	13.57	0.00	3.80	0.06
	14-Apr-2005	17.22	17.14	0.08	14.42	0.00	3.80	0.08
	30-Apr-2005	17.00	16.84	0.16	14.71	0.25	4.05	0.01
	13-May-2005	16.61	16.54	0.07	15.02	0.00	4.05	0.07
	31-May-2005	16.38	16.30	0.08	15.26	0.00	4.05	0.08
	24-Jun-2005	16.50	16.29	0.21	15.26	0.25	4.30	0.01
	8-Jul-2005	16.51	16.40	0.11	15.16	0.25	4.55	0.00
	15-Jul-2005	16.51	16.45	0.06	15.11	0.00	4.55	0.06
	29-Jul-2005	16.79	16.72	0.07	14.84	0.00	4.55	0.07
	26-Aug-2005	17.43	17.39	0.04	14.18	0.00	4.55	0.04
	24-Sep-2005	18.05	17.96	0.09	13.60	0.00	4.55	0.09
	21-Oct-2005	18.58	18.50	0.08	13.06	0.00	4.55	0.08
	28-Nov-2005	17.65	17.45	0.20	14.10	0.05	4.60	< 0.01
	14-Dec-2005	17.19	17.10	0.09	14.46	0.00	4.60	0.09
	3-Jan-2006	16.15	15.98	0.17	15.57	0.50	5.10	0.03
	17-Jan-2006	15.19	15.10	0.09	16.46	0.00	5.10	0.09

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-15</b> <i>(continued)</i>  (31.57)	23-Jan-2006	15.01	14.95	0.06	16.61	0.00	5.10	0.06
	17-Feb-2006	14.35	14.30	0.05	17.26	0.00	5.10	0.05
	19-Sep-2006	18.61	18.01	0.60	13.49	1.30	6.40	0.01
	13-Dec-2006	16.30	15.87	0.43	15.65	1.00	7.40	< 0.01
	29-Mar-2007	15.57	15.22	0.35	16.31	0.25	7.65	0.01
	27-Jun-2007	16.56	16.14	0.42	15.38	2.00	9.65	0.01
	18-Sep-2007	18.26	18.25	0.01	13.32	0.00	9.65	0.01
	6-Dec-2007	17.76	17.48	0.28	14.06	0.30	9.95	0.00
	10-Mar-2008	15.86	15.35	0.51	16.16	0.00	9.95	0.51
	14-Mar-2008	15.56	15.15	0.41	16.37	0.75	10.70	0.01
	13-Jun-2008	16.28	15.73	0.55	15.78	0.66	11.36	SHEEN
	8-Sep-2008	17.67	17.66	0.01	13.91	0.26	11.62	SHEEN
	29-Dec-2008	Unable to Gauge, Under Large Puddle of Water						
	10-Mar-2009	16.35	16.29	0.06	15.27	0.00	11.62	0.06
	4-Jun-2009	17.14	16.18	0.96	15.28	0.00	11.62	0.00
	13-Jul-2009	19.06	18.02	1.04	13.44	1.50	13.12	0.02
	10-Aug-2009	17.92	17.63	0.29	13.91	0.25	13.37	0.01
	9-Sep-2009	18.48	18.35	0.13	13.21	0.20	13.57	SHEEN
	15-Oct-2009	19.34	19.29	0.05	12.27	0.00	13.57	0.05
	18-Nov-2009	18.7	18.66	0.04	12.91	0.00	13.57	0.04
	15-Dec-2009	18.45	17.83	0.62	13.67	0.64	14.21	SHEEN
	13-Jan-2010	16.65	16.24	0.41	15.28	0.33	14.54	SHEEN
	21-Jan-2010	16.21	15.91	0.30	15.63	0.30	14.84	SHEEN
	26-Jan-2010	16.06	15.91	0.15	15.64	0.30	15.14	SHEEN
	5-Feb-2010	15.92	15.83	0.09	15.73	0.00	15.14	0.09
	2-Mar-2010	16.17	15.90	0.27	15.64	0.30	15.44	SHEEN
	12-Mar-2010	15.81	15.67	0.14	15.88	0.30	15.74	0.01
	25-Mar-2010	15.70	15.65	0.05	15.91	0.00	15.74	0.05
	2-Apr-2010	15.89	15.84	0.05	15.72	0.00	15.74	0.05
	9-Apr-2010	15.57	15.57	0.00	16.00	0.00	15.74	0.00
	16-Apr-2010	15.72	15.52	0.20	16.03	0.50	16.24	SHEEN
	23-Apr-2010	15.94	15.85	0.09	15.71	0.00	16.24	0.09
	4-May-2010	15.89	15.83	0.06	15.73	0.00	16.24	0.06
	8-Jun-2010	15.61	15.55	0.06	16.01	0.00	16.24	0.06
	9-Jul-2010	15.78	15.53	0.25	16.01	0.25	16.49	0.01
	23-Jul-2010	15.85	15.76	0.09	15.80	0.00	16.49	0.09
	6-Aug-2010	16.19	15.92	0.27	15.62	0.25	16.74	SHEEN
	19-Aug-2010	16.23	16.15	0.08	15.41	0.00	16.74	0.08
	27-Aug-2010	16.40	16.22	0.18	15.33	0.25	16.99	0.07
	17-Sep-2010	16.74	16.62	0.12	14.94	0.25	17.24	SHEEN
	8-Oct-2010	17.30	17.23	0.07	14.33	0.00	17.24	0.07
	11-Nov-2010	17.19	17.10	0.09	14.46	0.00	17.24	0.09
	15-Dec-2010	15.85	15.64	0.21	15.91	0.50	17.74	0.04
	21-Dec-2010	15.60	15.47	0.13	16.09	0.50	18.24	0.02
	30-Dec-2010	15.45	15.32	0.13	16.24	0.50	18.74	0.02
	6-Jan-2011	15.23	15.19	0.04	16.38	0.05	18.79	0.01
	13-Jan-2011	14.66	14.62	0.04	16.95	0.00	18.79	0.04
	19-Jan-2011	14.99	14.94	0.05	16.62	0.00	18.79	0.05
	28-Jan-2011	14.76	14.72	0.04	16.85	0.00	18.79	0.04
	9-Feb-2011	15.05	14.98	0.07	16.58	0.00	18.79	0.07
	23-Feb-2011	15.14	15.05	0.09	16.51	0.00	18.79	0.09
	9-Mar-2011	14.42	14.40	0.02	17.17	0.00	18.79	0.02
	29-Mar-2011	14.46	14.43	0.03	17.14	0.00	18.79	0.03
	21-Apr-2011	14.16	14.15	0.01	17.42	0.00	18.79	0.01
	6-May-2011	14.19	14.18	0.01	17.39	0.00	18.79	0.01
	9-Jun-2011	14.45	SHEEN	0.00	17.12	0.00	18.79	SHEEN
	7-Jul-2011	14.80	14.75	0.05	16.81	0.00	18.79	0.05
	3-Aug-2011	15.28	15.21	0.07	16.35	0.00	18.79	0.07
	8-Sep-2011	16.03	15.98	0.05	15.58	0.00	18.79	0.05
	3-Oct-2011	16.45	16.13	0.32	15.40	0.25	19.04	0.01
	10-Nov-2011	17.11	17.02	0.09	14.54	0.00	19.04	0.09
	1-Dec-2011	16.57	16.56	0.01	15.01	0.00	19.04	0.01
	16-Jan-2012	16.88	16.88	0.00	14.69	0.00	19.04	0.00
	25-Jan-2012	16.22	16.13	0.09	15.43	0.00	19.04	0.09
	3-Mar-2012	16.06	15.98	0.08	15.58	0.00	19.04	0.08
	14-Mar-2012	Well under large puddle.						
	22-Mar-2012	15.53	15.46	0.07	16.10	0.00	19.04	0.07
	29-Mar-2012	Well under large puddle.						
<b>MW-16</b>  (31.24)	5-Apr-2012	15.38	15.11	0.27	16.43	0.13	19.17	SHEEN
	13-Apr-2012	15.15	15.05	0.10	16.51	0.00	19.17	0.10
	23-Apr-2012	15.01	15.00	0.01	16.57	0.00	19.17	0.01
	14-May-2012	15.15	14.90	0.25	16.64	0.25	19.42	0.01
	25-May-2012	15.03	15.02	0.01	16.55	0.00	19.42	0.01
	12-Jun-2012	15.11	15.10	0.01	16.47	0.00	19.42	0.01
	27-Aug-2003	18.43	18.21	0.22	13.01	0.25	0.25	< 0.01
	3-Sep-2003	18.21	18.20	0.01	13.04	Trace	0.25	0.01
	11-Sep-2003	18.28	18.27	0.01	12.97	Trace	0.25	< 0.01
	17-Sep-2003	18.31	18.30	0.01	12.94	Trace	0.25	< 0.01
	30-Sep-2003	18.23	18.21	0.02	13.03	Trace	0.25	< 0.01
	14-Oct-2003	18.31	NP	0.00	13.18	0.00	0.25	0.00
<b>MW-17</b>  (28.40)	29-Oct-2003	18.34	18.32	0.02	13.17	Trace	0.25	0.00
	13-Nov-2003	18.37	18.36	0.01	13.13	Trace	0.25	0.00
	26-Nov-2003	18.23	18.20	0.03	13.29	Trace	0.25	< 0.01
	24-Dec-2003	17.41	NP	0.00	14.08	0.00	0.25	0.00
	21-Jan-2004	17.04	17.03	0.01	14.46	Trace	0.25	< 0.01
	25-Feb-2004	17.08	17.07	0.01	14.42	0.00	0.25	0.01
	24-Mar-2004	18.61	18.60	0.01	12.89	0.00	0.25	0.01
	27-Aug-2003	18.00	17.48	0.52	10.86	0.50	0.50	0.01
	3-Sep-2003	17.85	17.61	0.24	10.76	0.10	0.60	0.01
	11-Sep-2003	18.07	17.98	0.09	10.41	Trace	0.60	< 0.01
	17-Sep-2003	18.20	18.05	0.15	10.33	Trace	0.60	< 0.01
	30-Sep-2003	18.18	18.00	0.18	10.38	Trace	0.60	< 0.01
	14-Oct-2003	18.60	18.52	0.08	9.87	Trace	0.60	0.01
	29-Oct-2003	18.56	18.51	0.05	9.88	Trace	0.60	0.00
	13-Nov-2003	18.74	18.71	0.03	9.69	Trace	0.60	0.01
	26-Nov-2003	18.68	18.66	0.02	9.74	Trace	0.60	0.01

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-17</b> <i>(continued)</i>	24-Dec-2003	17.31	17.29	0.02	11.11	Trace	0.60	0.01
	21-Jan-2004	15.68	NP	0.00	12.72	0.00	0.60	0.00
	25-Feb-2004	16.30	14.17	2.13	14.00	1.50	2.10	0.01
	10-Mar-2004	15.80	14.85	0.95	13.45	0.15	2.25	0.01
	24-Mar-2004	15.12	15.03	0.09	13.36	0.00	2.25	0.09
	14-Jan-2005	19.50	17.75	1.75	10.46	0.10	2.35	0.35
	21-Jan-2005	18.55	17.75	0.80	10.56	1.10	3.45	0.10
	28-Jan-2005	18.01	17.78	0.23	10.59	0.20	3.65	0.05
	4-Feb-2005	18.02	17.86	0.16	10.52	0.15	3.80	0.07
	11-Feb-2005	17.81	17.68	0.13	10.71	0.05	3.85	0.07
	18-Feb-2005	17.86	17.74	0.12	10.65	0.05	3.90	0.05
	25-Feb-2005	17.99	17.91	0.08	10.48	0.00	3.90	0.08
	4-Mar-2005	18.15	18.05	0.10	10.34	0.15	4.05	0.03
	11-Mar-2005	18.03	18.00	0.03	10.40	0.00	4.05	0.03
	25-Mar-2005	18.33	18.26	0.07	10.13	0.00	4.05	0.07
	14-Apr-2005	17.82	17.74	0.08	10.65	0.00	4.05	0.08
	30-Apr-2005	17.54	17.46	0.08	10.93	0.00	4.05	0.08
	31-May-2005	16.74	16.66	0.08	11.73	0.00	4.05	0.08
	24-Jun-2005	16.85	16.78	0.07	11.61	0.00	4.05	0.07
	29-Jul-2005	17.52	17.42	0.10	10.97	0.00	4.05	0.10
	26-Aug-2005	17.97	17.90	0.07	10.49	0.00	4.05	0.07
	24-Sep-2005	18.56	18.50	0.06	9.89	0.00	4.05	0.06
	21-Oct-2005	18.90	18.82	0.08	9.57	0.00	4.05	0.08
	28-Nov-2005	18.40	18.30	0.10	10.09	0.00	4.05	0.10
	3-Jan-2006	16.10	16.01	0.09	12.38	0.00	4.05	0.09
	17-Feb-2006	15.22	13.65	1.57	14.58	1.50	5.55	0.05
	3-Mar-2006	14.79	13.90	0.89	14.40	0.75	6.30	0.05
	19-Sep-2006	18.86	18.18	0.68	10.15	0.80	7.10	0.05
	13-Dec-2006	17.11	15.34	1.77	12.87	1.60	8.70	0.03
	29-Mar-2007	17.56	13.66	3.90	14.31	4.00	12.70	0.05
	3-May-2007	16.10	14.74	1.36	13.51	7.50	20.20	0.05
	15-May-2007	15.50	14.75	0.75	13.57	2.00	22.20	0.02
	25-May-2007	15.35	14.79	0.56	13.55	1.00	23.20	0.05
	4-Jun-2007	15.90	15.53	0.37	12.83	0.75	23.95	0.10
	13-Jun-2007	16.11	15.77	0.34	12.59	0.50	24.45	0.04
	19-Jun-2007	16.02	15.84	0.18	12.54	0.25	24.70	0.05
	27-Jun-2007	16.47	16.31	0.16	12.07	1.00	25.70	0.04
	9-Jul-2007	16.75	16.66	0.09	11.73	0.00	25.70	0.09
	25-Jul-2007	17.01	16.87	0.14	11.51	0.10	25.80	0.10
	9-Aug-2007	17.42	17.24	0.18	11.14	0.15	25.95	0.10
	22-Aug-2007	17.66	17.57	0.09	10.82	0.00	25.95	0.09
	7-Sep-2007	17.97	17.90	0.07	10.49	0.00	25.95	0.07
	14-Sep-2007	17.84	17.70	0.14	10.68	0.50	26.45	0.01
	18-Sep-2007	18.23	18.19	0.04	10.21	0.00	26.45	0.04
	4-Oct-2007	18.50	18.46	0.04	9.94	0.00	26.45	0.04
	11-Oct-2007	18.55	18.51	0.04	9.89	0.00	26.45	0.04
	24-Oct-2007	18.65	18.60	0.05	9.79	0.00	26.45	0.05
	8-Nov-2007	18.77	18.72	0.05	9.67	0.00	26.45	0.05
	21-Nov-2007	18.71	18.65	0.06	9.74	0.00	26.45	0.06
	7-Dec-2007	17.79	17.50	0.29	10.87	0.40	26.85	0.06
	21-Dec-2007	17.40	16.96	0.44	11.39	0.40	27.25	0.00
(28.40)	3-Jan-2008	16.00	15.19	0.81	13.12	1.00	28.25	0.04
	18-Jan-2008	15.80	14.48	1.32	13.77	1.50	29.75	0.01
	24-Jan-2008	14.96	14.39	0.57	13.95	0.90	30.65	SHEEN
	31-Jan-2008	14.97	14.57	0.40	13.79	0.75	31.40	SHEEN
	6-Feb-2008	14.81	14.27	0.54	14.07	1.00	32.40	SHEEN
	15-Feb-2008	14.62	13.98	0.64	14.35	1.00	33.40	SHEEN
	29-Feb-2008	15.00	14.45	0.55	13.89	0.75	34.15	SHEEN
	10-Mar-2008	15.18	14.81	0.37	13.55	0.00	34.15	0.37
	12-Mar-2008	15.25	14.79	0.46	13.56	0.50	34.65	SHEEN
	21-Mar-2008	15.35	15.03	0.32	13.33	0.40	35.05	SHEEN
	11-Apr-2008	15.63	15.32	0.31	13.05	0.79	35.84	SHEEN
	17-Apr-2008	15.53	15.34	0.19	13.04	0.26	36.10	SHEEN
	24-Apr-2008	15.57	15.48	0.09	12.91	0.13	36.23	SHEEN
	2-May-2008	15.54	15.35	0.19	13.03	0.50	36.73	0.01
	8-May-2008	15.54	15.42	0.12	12.97	0.20	36.93	SHEEN
	14-May-2008	15.61	15.50	0.11	12.89	0.50	37.43	SHEEN
	30-May-2008	14.76	14.54	0.22	13.84	0.40	37.83	SHEEN
	13-Jun-2008	14.45	14.20	0.25	14.17	0.40	38.23	SHEEN
	25-Jun-2008	15.01	14.84	0.17	13.54	0.21	38.44	SHEEN
	11-Jul-2008	15.85	15.73	0.12	12.66	0.10	38.54	SHEEN
	28-Jul-2008	16.68	16.62	0.06	11.77	0.00	38.54	0.06
	13-Aug-2008	17.27	17.12	0.15	11.26	0.13	38.67	SHEEN
	27-Aug-2008	17.48	17.42	0.06	10.97	0.00	38.67	0.06
	8-Sep-2008	17.73	17.68	0.05	10.71	0.00	38.67	0.05
	18-Sep-2008	18.00	17.95	0.05	10.44	0.00	38.67	0.05
	30-Sep-2008	17.17	17.12	0.05	11.27	0.00	38.67	0.05
	16-Oct-2008	18.46	18.40	0.06	9.99	0.00	38.67	0.06
	30-Oct-2008	18.60	18.56	0.04	9.84	0.00	38.67	0.04
	14-Nov-2008	18.53	18.46	0.07	9.93	0.00	38.67	0.07
	26-Nov-2008	18.36	18.27	0.09	10.12	0.00	38.67	0.09
	16-Dec-2008	18.44	18.36	0.08	10.03	0.00	38.67	0.08
	29-Dec-2008	18.23	18.04	0.19	10.34	0.13	38.80	SHEEN
	15-Jan-2009	16.49	15.62	0.87	12.68	0.40	39.20	0.01
	23-Jan-2009	16.22	15.82	0.40	12.54	0.40	39.60	0.01
	29-Jan-2009	16.19	15.96	0.23	12.41	0.26	39.86	SHEEN

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-17</b> <i>(continued)</i>	4-Feb-2009	16.15	15.94	0.21	12.44	0.40	40.26	0.01
	12-Feb-2009	16.34	16.22	0.12	12.17	0.26	40.52	SHEEN
	19-Feb-2009	16.65	16.57	0.08	11.82	0.00	40.52	0.08
	10-Mar-2009	16.61	16.49	0.12	11.90	0.13	40.65	SHEEN
	27-Mar-2009	16.69	16.58	0.11	11.81	0.13	40.78	SHEEN
	16-Apr-2009	16.64	16.55	0.09	11.84	0.00	40.78	0.09
	14-May-2009	16.27	16.15	0.12	12.24	0.07	40.85	SHEEN
	4-Jun-2009	15.79	15.73	0.06	12.66	0.00	40.85	SHEEN
	13-Jul-2009	17.26	17.14	0.12	11.25	0.13	40.98	0.01
	10-Aug-2009	17.90	17.84	0.06	10.55	0.00	40.98	0.06
	9-Sep-2009	18.52	18.47	0.05	9.92	0.00	40.98	0.05
	15-Oct-2009	18.79	18.73	0.06	9.66	0.00	40.98	0.06
	18-Nov-2009	18.34	18.32	0.02	10.08	0.00	40.98	0.02
	15-Dec-2009	17.43	17.31	0.12	11.08	0.16	41.14	SHEEN
	13-Jan-2010	16.80	15.54	1.26	14.28	1.33	42.47	SHEEN
	21-Jan-2010	--	16.83	--	--	0.80	43.27	--
	26-Jan-2010	15.74	15.07	0.67	14.40	0.70	43.97	SHEEN
	5-Feb-2010	15.60	15.53	0.07	15.46	0.00	43.97	0.07
	2-Mar-2010	16.85	14.92	1.93	12.99	2.10	46.07	SHEEN
	12-Mar-2010	16.06	15.13	0.93	14.20	1.00	47.07	0.00
	25-Mar-2010	16.10	15.25	0.85	14.40	1.00	48.07	0.21
	2-Apr-2010	16.63	16.12	0.51	15.61	0.25	48.32	0.01
	9-Apr-2010	15.63	14.94	0.69	14.25	0.50	48.82	0.00
	16-Apr-2010	14.79	14.79	0.00	14.79	0.00	48.82	0.00
	23-Apr-2010	16.30	15.22	1.08	14.14	1.00	49.82	0.02
	4-May-2010	15.91	15.31	0.60	14.71	0.40	50.22	SHEEN
	8-Jun-2010	14.43	13.80	0.63	13.17	0.75	50.97	0.02
	9-Jul-2010	16.02	14.75	1.27	13.48	1.00	51.97	0.00
	23-Jul-2010	16.24	15.58	0.66	14.92	0.50	52.47	0.02
	6-Aug-2010	16.45	16.08	0.37	15.71	0.50	52.97	0.01
	19-Aug-2010	16.73	16.48	0.25	16.23	0.25	53.22	0.01
	27-Aug-2010	16.77	16.69	0.08	16.61	0.00	53.22	0.01
	17-Sep-2010	17.27	17.13	0.14	16.99	0.50	53.72	0.01
	8-Oct-2010	17.48	17.43	0.05	17.38	0.00	53.72	0.05
	11-Nov-2010	17.20	16.88	0.32	16.56	0.40	54.12	0.02
	15-Dec-2010	16.81	14.18	2.63	11.55	2.50	56.62	0.01
	21-Dec-2010	15.39	14.20	1.19	13.01	1.25	57.87	0.01
	30-Dec-2010	14.87	13.83	1.04	12.79	1.00	58.87	0.01
	6-Jan-2011	14.46	13.74	0.72	13.02	0.75	59.62	0.03
	13-Jan-2011	14.41	13.83	0.58	13.25	0.75	60.37	0.01
	19-Jan-2011	13.50	13.10	0.40	12.70	0.50	60.87	SHEEN
	28-Jan-2011	13.66	12.96	0.70	12.26	0.75	61.62	0.02
	9-Feb-2011	14.75	13.95	0.80	13.15	1.50	63.12	0.02
	23-Feb-2011	14.80	14.75	0.05	14.70	0.00	63.12	0.00
	9-Mar-2011	14.05	13.32	0.73	12.59	0.40	63.52	0.01
	29-Mar-2011	14.97	13.06	1.91	11.15	2.50	66.02	0.02
	21-Apr-2011	14.04	12.65	1.39	11.26	1.20	67.22	0.02
	6-May-2011	14.01	13.02	0.99	12.03	0.50	67.72	0.02
	9-Jun-2011	12.58	12.05	0.53	11.52	0.50	68.22	0.01
	7-Jul-2011	14.06	14.05	0.01	14.04	0.00	68.22	0.01
	3-Aug-2011	14.79	14.44	0.35	14.09	0.50	68.72	0.01
	8-Sep-2011	16.32	16.22	0.10	16.12	0.00	68.72	0.10
	3-Oct-2011	17.08	16.83	0.25	16.58	0.50	69.22	0.02
	10-Nov-2011	17.65	17.57	0.08	17.49	0.00	69.22	0.80
	1-Dec-2011	17.07	17.05	0.02	17.03	0.00	69.22	0.02
	6-Jan-2012	16.82	16.78	0.04	16.74	0.00	69.22	0.04
	25-Jan-2012	15.70	15.49	0.21	15.28	0.30	69.52	0.01
	3-Mar-2012	16.52	15.57	0.95	14.62	1.00	70.52	0.06
	14-Mar-2012	15.81	14.85	0.96	13.89	0.75	71.27	0.01
	22-Mar-2012	14.99	14.05	0.94	13.11	0.50	71.77	0.01
	29-Mar-2012	14.22	13.64	0.58	13.06	0.50	72.27	0.02
	5-Apr-2012	13.44	12.92	0.52	12.40	0.25	72.52	0.01
	13-Apr-2012	13.30	13.21	0.09	13.12	0.00	72.52	0.09
	23-Apr-2012	13.75	13.09	0.66	12.43	0.50	73.02	0.01
	14-May-2012	13.85	13.05	0.80	12.25	0.50	73.52	0.02
	25-May-2012	13.16	13.15	0.01	13.14	0.00	73.52	0.01
	12-Jun-2012	14.16	13.40	0.76	12.64	0.75	74.27	0.01
<b>MW-19</b> <i>(30.73)</i>	27-Aug-2003	21.43	18.61	2.82	11.81	2.00	2.00	0.12
	3-Sep-2003	19.55	18.91	0.64	11.75	0.50	2.50	0.02
	11-Sep-2003	19.38	19.28	0.10	11.44	0.10	2.60	0.01
	17-Sep-2003	19.55	19.46	0.09	11.26	0.10	2.70	0.01
	30-Sep-2003	19.65	19.57	0.08	11.15	Trace	2.70	0.02
	14-Oct-2003	19.76	19.66	0.10	11.06	Trace	2.70	0.01
	29-Oct-2003	19.77	19.65	0.12	11.07	0.10	2.80	0.02
	13-Nov-2003	19.91	19.86	0.05	10.86	Trace	2.80	0.00
	26-Nov-2003	19.80	19.74	0.06	10.98	Trace	2.80	< 0.01
	24-Dec-2003	19.18	18.07	1.11	12.54	0.20	3.00	0.06
	30-Dec-2003	19.15	18.10	1.05	12.51	0.20	3.20	0.02
	9-Jan-2004	19.41	15.41	4.00	14.88	0.30	3.50	0.02
	15-Jan-2004	19.15	15.59	3.56	14.75	1.90	5.40	0.07
	21-Jan-2004	17.34	15.34	2.00	15.17	1.00	6.40	0.02
	24-Jan-2004	16.55	14.96	1.59	15.60	0.80	7.20	0.01
	3-Feb-2004	17.70	14.45	3.25	15.92	1.00	8.20	0.01
	12-Feb-2004	16.75	14.60	2.15	15.89	1.00	9.20	0.01
	18-Feb-2004	16.17	14.85	1.32	15.73	0.90	10.10	< 0.01
	25-Feb-2004	15.12	14.71	0.41	15.97	0.30	10.40	< 0.01
	3-Mar-2004	15.25	14.99	0.26	15.71	0.10	10.50	0.01
	10-Mar-2004	15.60	15.03	0.57	15.64	0.40	10.90	0.02
	19-Mar-2004	15.85	15.08	0.77	15.57	0.50	11.40	0.01
	24-Mar-2004	15.90	15.22	0.68	15.44	0.40	11.80	0.01
	1-Apr-2004	16.55	15.61	0.94	15.02	0.60	12.40	0.01
	14-Jan-2005	--	--	--	--	--	--	--
	21-Jan-2005	20.10	19.00	1.10	11.61	0.75	13.15	0.10
	28-Jan-2005	19.22	19.10	0.12	11.62	Trace	13.15	0.03
	4-Feb-2005	19.17	19.08	0.09	11.64	0.00	13.15	0.09
	18-Feb-2005	19.06	18.97	0.09	11.75	0.00	13.15	0.09
	25-Feb-2005	19.35	19.24	0.11	11.48	0.05	13.20	0.03

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-19</b> <i>(continued)</i>	11-Mar-2005	19.35	19.31	0.04	11.42	0.00	13.20	0.04
	25-Mar-2005	19.69	19.61	0.08	11.11	0.00	13.20	0.08
	30-Apr-2005	19.36	18.91	0.45	11.77	0.25	13.45	0.00
	13-May-2005	18.88	18.56	0.32	12.13	0.25	13.70	0.03
	31-May-2005	19.00	18.00	1.00	12.62	1.00	14.70	0.05
	24-Jun-2005	19.32	18.11	1.21	12.49	1.50	16.20	0.08
	8-Jul-2005	19.40	18.42	0.98	12.20	0.75	16.95	0.01
	15-Jul-2005	18.87	18.64	0.23	12.06	0.10	17.05	0.01
	22-Jul-2005	19.93	19.86	0.07	10.86	0.00	17.05	0.07
	29-Jul-2005	19.00	18.93	0.07	11.79	0.00	17.05	0.07
	12-Aug-2005	19.34	19.18	0.16	11.53	0.10	17.15	0.02
	26-Aug-2005	19.44	19.39	0.05	11.33	0.00	17.15	0.05
	24-Sep-2005	19.84	19.75	0.09	10.97	0.00	17.15	0.09
	21-Oct-2005	20.00	19.99	0.01	10.74	0.00	17.15	0.01
	28-Nov-2005	19.55	19.42	0.13	11.30	0.05	17.20	< 0.01
	14-Dec-2005	19.65	19.22	0.43	11.46	0.10	17.30	0.08
	21-Dec-2005	19.16	18.82	0.34	11.87	0.50	17.80	0.10
	3-Jan-2006	20.15	17.35	2.80	13.07	2.50	20.30	0.10
	11-Jan-2006	17.40	15.00	2.40	15.47	2.50	22.80	0.10
	17-Jan-2006	15.75	14.46	1.29	16.13	1.10	23.90	0.03
	23-Jan-2006	15.38	14.50	0.88	16.13	0.70	24.60	0.10
	31-Jan-2006	14.92	14.33	0.59	16.34	0.20	24.80	0.08
	17-Feb-2006	15.25	14.43	0.82	16.21	1.50	26.30	0.04
	24-Feb-2006	15.11	14.62	0.49	16.06	1.50	27.80	0.03
	3-Mar-2006	15.23	14.57	0.66	16.09	0.50	28.30	0.03
	14-Mar-2006	16.19	14.95	1.24	15.64	0.75	29.05	0.05
	21-Mar-2006	15.66	14.89	0.77	15.76	0.50	29.55	0.10
	31-Mar-2006	15.48	14.89	0.59	15.78	0.30	29.85	0.02
	6-Apr-2006	15.45	15.21	0.24	15.49	0.20	30.05	0.01
	14-Apr-2006	15.04	14.81	0.23	15.89	0.20	30.25	0.10
	24-Apr-2006	15.19	14.75	0.44	15.93	0.25	30.50	0.01
	9-May-2006	15.58	14.98	0.60	15.68	0.70	31.20	0.07
	19-May-2006	15.50	15.02	0.48	15.66	0.90	32.10	0.01
	25-May-2006	15.41	15.06	0.35	15.63	0.70	32.80	0.01
	2-Jun-2006	15.33	15.10	0.23	15.60	0.30	33.10	0.03
Product Skimmer Installed in Well								
	9-Jun-2006	--	--	--	--	0.25	33.35	--
	19-Jun-2006	--	--	--	--	0.15	33.50	--
	28-Jun-2006	--	--	--	--	0.20	33.70	--
	3-Jul-2006	--	--	--	--	0.10	33.80	--
	10-Jul-2006	--	--	--	--	0.10	33.90	--
	18-Jul-2006	--	--	--	--	0.20	34.10	--
	25-Jul-2006	--	--	--	--	0.40	34.50	--
	4-Aug-2006	--	--	--	--	0.10	34.60	--
	11-Aug-2006	--	--	--	--	0.90	35.50	--
	18-Aug-2006	--	--	--	--	0.30	35.80	--
	23-Aug-2006	--	--	--	--	0.10	35.90	--
	8-Sep-2006	--	--	--	--	0.05	35.95	--
	20-Sep-2006	--	--	--	--	0.10	36.05	--
	3-Oct-2006	--	--	--	--	0.05	36.10	--
	6-Nov-2006	--	--	--	--	0.05	36.15	--
	22-Nov-2006	--	--	--	--	0.00	36.15	--
	4-Dec-2006	--	--	--	--	1.90	38.05	--
	13-Dec-2006	--	--	--	--	1.30	39.35	--
	18-Dec-2006	--	--	--	--	1.00	40.35	--
	26-Dec-2006	--	--	--	--	1.10	41.45	--
	9-Jan-2007	--	--	--	--	1.20	42.65	--
	15-Jan-2007	--	--	--	--	1.00	43.65	--
	26-Jan-2007	--	--	--	--	1.10	44.75	--
	31-Jan-2007	--	--	--	--	1.10	45.85	--
	9-Feb-2007	--	--	--	--	1.00	46.85	--
	13-Feb-2007	--	--	--	--	1.00	47.85	--
	28-Feb-2007	--	--	--	--	1.10	48.95	--
	6-Mar-2007	--	--	--	--	1.20	50.15	--
	23-Mar-2007	--	--	--	--	4.00	54.15	--
	29-Mar-2007	--	--	--	--	5.00	59.15	--
	5-Apr-2007	--	--	--	--	0.50	59.65	--
	11-Apr-2007	--	--	--	--	0.40	60.05	--
	16-Apr-2007	--	--	--	--	8.20	68.25	--
	25-Apr-2007	--	--	--	--	0.80	69.05	--
	3-May-2007	--	--	--	--	5.00	74.05	--
	10-May-2007	--	--	--	--	0.90	74.95	--
	15-May-2007	--	--	--	--	0.50	75.45	--
	25-May-2007	--	--	--	--	0.25	75.70	--
	4-Jun-2007	--	--	--	--	0.75	76.45	--
	13-Jun-2007	--	--	--	--	0.20	76.65	--
	19-Jun-2007	--	--	--	--	0.10	76.75	--
	27-Jun-2007	--	--	--	--	1.00	77.75	--
	9-Jul-2007	--	--	--	--	1.20	78.95	--
	25-Jul-2007	--	--	--	--	0.10	79.05	--
	9-Aug-2007	--	--	--	--	0.15	79.20	--
	22-Aug-2007	--	--	--	--	0.00	79.20	--
	7-Sep-2007	--	--	--	--	0.10	79.30	--
	14-Sep-2007	--	--	--	--	0.10	79.40	--
	19-Sep-2007	--	--	--	--	0.00	79.40	--
	4-Oct-2007	--	--	--	--	0.10	79.50	--

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
MW-19 (continued)	11-Oct-2007	--	--	--	--	0.00	79.50	--
	24-Oct-2007	--	--	--	--	0.10	79.60	--
	8-Nov-2007	--	--	--	--	0.10	79.70	--
	21-Nov-2007	--	--	--	--	0.00	79.70	--
	7-Dec-2007	--	--	--	--	0.05	79.75	--
	21-Dec-2007	--	--	--	--	0.05	79.80	--
	3-Jan-2008	17.59	16.98	0.61	--	1.50	81.30	0.04
	18-Jan-2008	17.94	16.25	1.69	--	2.75	84.05	SHEEN
	24-Jan-2008	16.29	15.52	0.77	--	2.00	86.05	SHEEN
	31-Jan-2008	16.48	15.37	1.11	--	2.50	88.55	SHEEN
	6-Feb-2008	16.88	15.07	1.81	--	4.00	92.55	SHEEN
	15-Feb-2008	15.54	14.75	0.79	--	2.75	95.30	SHEEN
	29-Feb-2008	17.00	14.71	2.29	--	2.50	97.80	SHEEN
	14-Mar-2008	16.89	14.88	2.01	--	2.50	100.30	--
	21-Mar-2008	15.67	15.19	0.48	--	2.25	102.55	SHEEN
	11-Apr-2008	15.87	15.45	0.42	--	1.00	103.55	SHEEN
	17-Apr-2008	15.63	15.50	0.13	--	0.66	104.21	SHEEN
	24-Apr-2008	15.89	15.88	0.01	--	0.40	104.61	0.01
	2-May-2008	16.12	16.10	0.02	--	0.25	104.86	0.02
	8-May-2008	16.35	16.32	0.03	--	0.13	104.99	0.03
	14-May-2008	17.01	17.00	0.01	--	0.00	104.99	0.01
	30-May-2008	16.13	16.12	0.01	--	0.60	105.59	0.01
	13-Jun-2008	15.64	15.63	0.01	--	0.13	105.72	SHEEN
	25-Jun-2008	16.92	16.91	0.01	--	0.00	105.72	0.01
	11-Jul-2008	16.82	16.81	0.01	--	0.05	105.78	0.01
	28-Jul-2008	17.88	17.82	0.06	--	0.00	105.78	0.06
	13-Aug-2008	18.31	18.28	0.03	--	0.07	105.84	0.03
	27-Aug-2008	19.07	19.00	0.07	--	0.07	105.91	0.07
	8-Sep-2008	19.43	19.19	0.24	--	0.26	106.17	0.01
	18-Sep-2008	19.66	19.65	0.01	--	0.00	106.17	0.01
	30-Sep-2008	20.02	20.01	0.01	--	0.00	106.17	0.01
	16-Oct-2008	20.42	20.40	0.02	--	0.00	106.17	0.02
	30-Oct-2008	20.41	20.41	0.00	--	0.05	106.22	0.00
	14-Nov-2008	20.80	20.80	0.00	--	0.01	106.23	0.00
	26-Nov-2008	20.42	20.42	0.00	--	0.00	106.23	0.00
	16-Dec-2008	20.68	20.67	0.01	--	0.00	106.23	0.01
	29-Dec-2008	19.45	19.45	0.00	--	0.00	106.23	SHEEN
	15-Jan-2009	18.60	16.96	1.64	--	1.19	107.42	SHEEN
	23-Jan-2009	17.12	17.12	0.00	--	0.08	107.50	SHEEN
	29-Jan-2009	17.30	17.29	0.01	--	0.26	107.76	SHEEN
	4-Feb-2009	17.24	17.24	0.00	--	0.66	108.42	0.01
	12-Feb-2009	17.33	17.33	0.00	--	0.53	108.95	SHEEN
	19-Feb-2009	19.34	19.30	0.04	--	0.00	108.95	0.04
	10-Mar-2009	18.97	18.94	0.03	--	0.00	108.95	0.03
	27-Mar-2009	18.74	18.70	0.04	--	0.05	109.00	0.04
	16-Apr-2009	19.00	18.99	0.01	--	0.00	109.00	0.01
	14-May-2009	18.46	18.45	0.01	--	0.00	109.00	0.01
	5-Jun-2009	17.88	17.86	0.02	--	0.03	109.03	SHEEN
	13-Jul-2009	19.34	19.30	0.04	--	0.04	109.07	0.04
	10-Aug-2009	20.15	20.09	0.06	--	0.00	109.07	0.06
	9-Sep-2009	21.60	21.52	0.08	--	0.00	109.07	0.08
	15-Oct-2009	20.73	20.72	0.01	--	0.00	109.07	0.01
	18-Nov-2009	20.53	20.53	0.00	--	0.00	109.07	0.00
	16-Dec-2009	19.03	19.03	0.00	--	0.00	109.07	SHEEN
	13-Jan-2010	21.65	17.75	3.90	--	5.00	114.07	SHEEN
	21-Jan-2010	20.26	16.82	3.44	--	3.10	117.17	SHEEN
	26-Jan-2010	--	--	--	--	1.10	118.27	--
	5-Feb-2010	--	--	--	--	0.90	119.17	SHEEN
	2-Mar-2010	23.70	15.72	7.98	--	10.75	129.92	0.03
	12-Mar-2010	17.36	15.51	1.85	--	3.50	133.42	0.01
	25-Mar-2010	19.13	16.10	3.03	--	3.00	136.42	--
	2-Apr-2010	17.33	17.33	SHEEN	--	1.00	137.42	SHEEN
	9-Apr-2010	17.35	15.31	2.04	--	2.50	139.92	0.01
	16-Apr-2010	17.43	15.32	2.11	--	2.50	142.42	0.06
	23-Apr-2010	17.23	15.72	1.51	--	2.00	144.42	0.01
	4-May-2010	19.86	15.94	3.92	--	3.25	147.67	0.03
	8-Jun-2010	16.19	14.98	1.21	--	1.50	149.17	0.05
	9-Jul-2010	22.54	15.25	7.29	--	5.50	154.67	0.09
	23-Jul-2010	17.12	15.73	1.39	--	3.25	157.92	0.01
	6-Aug-2010	17.06	16.38	0.68	--	1.25	159.17	0.01
	19-Aug-2010	17.51	17.48	0.03	--	0.50	159.67	0.01
	27-Aug-2010	18.01	17.97	0.04	--	0.00	159.67	0.01
	17-Sep-2010	18.75	18.68	0.07	--	0.25	159.92	0.01
	8-Oct-2010	18.60	18.58	0.02	--	0.20	160.12	0.02
	11-Nov-2010	18.95	18.88	0.07	--	0.00	160.12	0.07
	15-Dec-2010	20.10	15.51	4.59	--	4.75	164.87	0.02
	21-Dec-2010	18.49	15.20	3.29	--	3.00	167.87	0.04
	30-Dec-2010	18.90	16.09	2.81	--	3.00	170.87	0.02
	6-Jan-2011	15.90	14.65	1.25	--	2.25	173.12	0.03
	13-Jan-2011	16.30	16.07	0.23	--	2.50	175.62	0.01
	19-Jan-2011	15.53	14.62	0.91	--	2.25	177.87	0.01
	28-Jan-2011	14.43	14.34	0.09	--	0.15	178.02	0.09
	9-Feb-2011	15.62	14.51	1.11	--	2.50	180.52	0.02
	23-Feb-2011	14.80	14.75	0.05	--	--	180.52	0.00
	9-Mar-2011	14.57	14.16	0.41	--	0.85	181.37	SHEEN
	29-Mar-2011	14.21	13.86	0.35	--	1.25	182.62	0.02

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
	21-Apr-2011	13.90	13.78	0.12	--	0.60	183.22	0.02
	6-May-2011	14.06	14.00	0.06	--	0.00	183.22	0.06
	9-Jun-2011	13.93	13.86	0.07	--	0.00	183.22	0.07
	7-Jul-2011	14.23	14.09	0.14	--	0.25	183.47	0.01
	3-Aug-2011	14.52	14.48	0.04	--	0.00	183.47	0.04
	8-Sep-2011	15.98	15.91	0.07	--	0.00	183.47	0.07
	3-Oct-2011	15.79	15.67	0.12	--	0.20	183.67	0.03
	10-Nov-2011	16.80	16.73	0.07	--	0.00	183.67	0.07
	1-Dec-2011	16.02	16.02	SHEEN	--	0.00	183.67	SHEEN
	6-Jan-2012	Well buried under asphalt pile.						
	25-Jan-2012	Well buried under asphalt pile.						
	3-Mar-2012	Well buried under asphalt pile.						
	6-Mar-2012	18.75	14.98	3.77	--	3.00	186.67	SHEEN
	14-Mar-2012	Well under large puddle.						
	22-Mar-2012	15.57	14.45	1.12	--	1.00	187.67	0.01
	29-Mar-2012	Well under large puddle.						
	5-Apr-2012	15.66	15.33	0.33	--	0.87	188.54	0.01
	13-Apr-2012	14.33	14.24	0.09	--	0.10	188.64	0.09
	23-Apr-2012	14.26	14.25	0.01	--	0.13	188.77	0.01
	14-May-2012	14.20	14.19	0.01	--	0.05	188.82	0.01
	25-May-2012	14.29	14.29	SHEEN	--	0.00	188.82	SHEEN
	12-Jun-2012	14.30	--	0.00	--	0.00	188.82	0.00
MW-20 (30.73)	27-Aug-2003	20.58	19.46	1.12	11.15	2.00	2.00	0.04
	3-Sep-2003	19.99	19.59	0.40	11.10	0.50	2.50	0.03
	11-Sep-2003	20.15	19.91	0.24	10.79	0.50	3.00	0.01
	17-Sep-2003	20.27	19.99	0.28	10.71	0.50	3.50	0.01
	30-Sep-2003	20.32	20.17	0.15	10.54	0.10	3.60	< 0.01
	14-Oct-2003	20.38	20.26	0.12	10.46	0.10	3.70	< 0.01
	29-Oct-2003	20.36	20.21	0.15	10.50	0.10	3.80	0.00
	13-Nov-2003	20.45	20.37	0.08	10.35	0.10	3.90	0.01
	26-Nov-2003	20.41	20.35	0.06	10.37	0.10	4.00	0.02
	24-Dec-2003	20.66	18.68	1.98	11.83	0.30	4.30	0.04
	30-Dec-2003	20.69	18.75	1.94	11.77	0.20	4.50	0.01
	9-Jan-2004	20.71	18.88	1.83	11.65	0.10	4.60	0.01
	15-Jan-2004	20.70	17.66	3.04	12.74	1.50	6.10	0.04
	21-Jan-2004	19.22	16.14	3.08	14.25	1.50	7.60	0.03
	29-Jan-2004	19.90	15.55	4.35	14.70	2.00	9.60	0.01
	3-Feb-2004	20.90	15.42	5.48	14.71	2.50	12.10	0.01
	12-Feb-2004	18.05	15.40	2.65	15.04	1.50	13.60	0.02
	18-Feb-2004	19.02	15.62	3.40	14.74	2.20	15.80	< 0.01
	25-Feb-2004	16.56	15.44	1.12	15.17	0.70	16.50	< 0.01
	3-Mar-2004	16.95	15.85	1.10	14.76	0.50	17.00	0.01
	10-Mar-2004	17.66	16.00	1.66	14.55	1.00	18.00	0.02
	18-Mar-2004	17.29	15.92	1.37	14.66	0.75	18.75	0.02
	24-Mar-2004	17.75	16.20	1.55	14.36	1.00	19.75	< 0.01
	1-Apr-2004	17.78	16.92	0.86	13.72	0.50	20.25	< 0.01
	14-Jan-2005	20.70	19.75	0.95	10.88	1.20	21.45	0.01
	21-Jan-2005	20.00	19.60	0.40	11.09	1.20	22.65	0.10
	28-Jan-2005	19.70	19.50	0.20	11.21	0.10	22.75	0.05
	4-Feb-2005	19.73	19.61	0.12	11.11	0.05	22.80	0.06
	11-Feb-2005	19.48	19.38	0.10	11.34	0.05	22.85	0.03
	18-Feb-2005	19.51	19.45	0.06	11.27	0.00	22.85	0.06
	25-Feb-2005	19.77	19.69	0.08	11.03	0.00	22.85	0.08
	11-Mar-2005	19.89	19.82	0.07	10.90	0.20	23.05	< 0.01
	25-Mar-2005	20.18	20.12	0.06	10.60	0.00	23.05	0.06
	30-Apr-2005	19.49	19.45	0.04	11.28	0.00	23.05	0.04
	31-May-2005	18.65	18.60	0.05	12.12	0.00	23.05	0.05
	24-Jun-2005	21.02	18.57	2.45	11.89	3.00	26.05	0.00
	8-Jul-2005	20.10	18.95	1.15	11.65	1.00	27.05	0.05
	15-Jul-2005	19.62	19.14	0.48	11.54	0.25	27.30	0.05
	22-Jul-2005	19.61	19.33	0.28	11.37	2.50	29.80	0.09
	29-Jul-2005	19.67	19.45	0.22	11.26	2.00	31.80	0.02
	5-Aug-2005	19.70	19.61	0.09	11.11	0.00	31.80	0.09
	12-Aug-2005	19.85	19.72	0.13	11.00	0.15	31.95	0.02
	26-Aug-2005	20.07	19.93	0.14	10.78	0.50	32.45	0.02
	9-Sep-2005	20.15	20.10	0.05	10.62	0.00	32.45	0.05
	24-Sep-2005	20.36	20.28	0.08	10.44	0.00	32.45	0.08
	21-Oct-2005	20.58	20.50	0.08	10.22	0.00	32.45	0.08
	28-Nov-2005	20.05	19.95	0.10	10.77	0.00	32.45	0.10
	3-Jan-2006	21.43	17.81	3.62	12.52	3.50	35.95	0.10
	17-Jan-2006	19.77	14.86	4.91	15.33	3.75	39.70	0.03
	23-Jan-2006	16.68	15.07	1.61	15.48	1.50	41.20	0.06
	31-Jan-2006	15.91	14.95	0.96	15.67	0.70	41.90	0.03
	17-Feb-2006	16.50	15.21	1.29	15.38	2.00	43.90	0.03
	24-Feb-2006	16.09	15.52	0.57	15.15	1.50	45.40	0.05
	3-Mar-2006	15.81	15.45	0.36	15.24	0.25	45.65	0.01
	14-Mar-2006	16.19	15.81	0.38	14.88	0.25	45.90	0.05
	21-Mar-2006	16.30	16.09	0.21	14.62	0.25	46.15	0.06
	31-Mar-2006	16.65	16.30	0.35	14.39	0.40	46.55	0.03
	6-Apr-2006	15.80	15.57	0.23	15.13	0.10	46.65	0.00
	14-Apr-2006	15.96	15.59	0.37	15.10	0.30	46.95	0.05
	24-Apr-2006	16.02	15.50	0.52	15.17	0.75	47.70	0.00
	9-May-2006	16.60	15.95	0.65	14.71	0.70	48.40	0.05
	19-May-2006	16.51	15.89	0.62	14.77	1.10	49.50	0.01
	25-May-2006	16.41	15.84	0.57	14.83	0.80	50.30	0.01
	2-Jun-2006	16.32	15.78	0.54	14.89	0.50	50.80	0.04
Product Skimmer Installed in Well - June 2006								

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-20</b> <i>(continued)</i>	9-Jun-2006	--	--	--	--	0.75	51.55	--
	19-Jun-2006	--	--	--	--	0.25	51.80	--
	28-Jun-2006	--	--	--	--	0.30	52.10	--
	3-Jul-2006	--	--	--	--	0.15	52.25	--
	10-Jul-2006	--	--	--	--	0.10	52.35	--
	18-Jul-2006	--	--	--	--	0.20	52.55	--
	25-Jul-2006	--	--	--	--	0.50	53.05	--
	4-Aug-2006	--	--	--	--	0.50	53.55	--
	11-Aug-2006	--	--	--	--	0.20	53.75	--
	18-Aug-2006	--	--	--	--	0.20	53.95	--
	23-Aug-2006	--	--	--	--	0.10	54.05	--
	8-Sep-2006	--	--	--	--	0.00	54.05	--
	20-Sep-2006	--	--	--	--	0.20	54.25	--
	3-Oct-2006	--	--	--	--	0.05	54.30	--
	6-Nov-2006	--	--	--	--	0.10	54.40	--
	22-Nov-2006	--	--	--	--	0.10	54.50	--
	4-Dec-2006	--	--	--	--	1.90	56.40	--
	13-Dec-2006	--	--	--	--	1.30	57.70	--
	18-Dec-2006	--	--	--	--	1.20	58.90	--
	26-Dec-2006	--	--	--	--	1.20	60.10	--
	5-Jan-2007	--	--	--	--	1.30	61.40	--
	9-Jan-2007	--	--	--	--	1.20	62.60	--
	15-Jan-2007	--	--	--	--	0.00	62.60	--
	26-Jan-2007	--	--	--	--	1.20	63.80	--
	31-Jan-2007	--	--	--	--	1.10	64.90	--
	9-Feb-2007	--	--	--	--	1.00	65.90	--
	13-Feb-2007	--	--	--	--	1.00	66.90	--
	28-Feb-2007	--	--	--	--	1.10	68.00	--
	6-Mar-2007	--	--	--	--	1.00	69.00	--
	23-Mar-2007	--	--	--	--	1.00	70.00	--
	29-Mar-2007	--	--	--	--	4.00	74.00	--
	5-Apr-2007	--	--	--	--	1.00	75.00	--
	11-Apr-2007	--	--	--	--	1.20	76.20	--
	16-Apr-2007	--	--	--	--	2.70	78.90	--
	25-Apr-2007	--	--	--	--	0.30	79.20	--
	3-May-2007	--	--	--	--	4.10	83.30	--
	10-May-2007	--	--	--	--	0.80	84.10	--
	15-May-2007	--	--	--	--	1.20	85.30	--
	25-May-2007	--	--	--	--	0.50	85.80	--
	4-Jun-2007	--	--	--	--	0.50	86.30	--
	13-Jun-2007	--	--	--	--	0.50	86.80	--
	19-Jun-2007	--	--	--	--	0.00	86.80	--
	27-Jun-2007	--	--	--	--	1.00	87.80	--
	9-Jul-2007	--	--	--	--	0.50	88.30	--
	25-Jul-2007	--	--	--	--	0.10	88.40	--
	9-Aug-2007	--	--	--	--	0.10	88.50	--
	22-Aug-2007	--	--	--	--	0.10	88.60	--
	7-Sep-2007	--	--	--	--	0.10	88.70	--
	14-Sep-2007	--	--	--	--	0.90	89.60	--
	19-Sep-2007	--	--	--	--	0.10	89.70	--
	4-Oct-2007	--	--	--	--	0.10	89.80	--
	11-Oct-2007	--	--	--	--	0.00	89.80	--
	24-Oct-2007	--	--	--	--	0.10	89.90	--
	8-Nov-2007	--	--	--	--	0.10	90.00	--
	21-Nov-2007	--	--	--	--	0.00	90.00	--
	7-Dec-2007	--	--	--	--	0.05	90.05	--
	21-Dec-2007	--	--	--	--	0.05	90.10	--
(30.73)	3-Jan-2008	19.70	17.44	2.26	--	3.00	93.10	0.02
	18-Jan-2008	18.00	16.93	1.07	--	2.50	95.60	SHEEN
	24-Jan-2008	17.57	16.57	1.00	--	1.00	96.60	SHEEN
	31-Jan-2008	17.61	16.76	0.85	--	1.75	98.35	SHEEN
	6-Feb-2008	18.02	16.55	1.47	--	3.00	101.35	SHEEN
	15-Feb-2008	17.46	15.94	1.52	--	4.25	105.60	SHEEN
	29-Feb-2008	18.18	16.28	1.90	--	2.50	108.10	SHEEN
	14-Mar-2008	17.62	16.59	1.03	--	2.50	110.60	SHEEN
	21-Mar-2008	17.40	17.33	0.07	--	1.00	111.60	SHEEN
	11-Apr-2008	17.80	17.57	0.23	--	2.00	113.60	SHEEN
	17-Apr-2008	17.67	17.56	0.11	--	1.06	114.66	SHEEN
	24-Apr-2008	17.84	17.71	0.13	--	0.26	114.92	SHEEN
	2-May-2008	17.58	17.50	0.08	--	0.25	115.17	0.08
	8-May-2008	17.63	17.59	0.04	--	1.30	116.47	0.04
	14-May-2008	17.92	17.88	0.04	--	0.03	116.50	0.04
	30-May-2008	16.79	16.71	0.08	--	0.03	116.53	0.08
	13-Jun-2008	16.50	16.43	0.07	--	0.26	116.79	SHEEN
	25-Jun-2008	17.05	16.86	0.19	--	0.00	116.79	SHEEN
	11-Jul-2008	17.85	17.76	0.09	--	0.13	116.92	0.09
	28-Jul-2008	18.22	18.21	0.01	--	0.03	116.95	0.01
	13-Aug-2008	19.30	19.28	0.02	--	0.00	116.95	0.02
	27-Aug-2008	19.56	19.55	0.01	--	0.13	117.08	0.01
	8-Sep-2008	19.71	19.68	0.03	--	0.00	117.08	0.03

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>MW-20</b> <i>(continued)</i>	18-Sep-2008	19.86	19.84	0.02	--	0.03	117.11	0.02
	30-Sep-2008	20.05	20.02	0.03	--	0.00	117.11	0.03
	16-Oct-2008	20.41	20.40	0.01	--	0.00	117.11	0.01
	30-Oct-2008	20.40	20.39	0.01	--	0.00	117.11	0.01
	14-Nov-2008	20.55	20.54	0.01	--	0.00	117.11	0.01
	26-Nov-2008	20.28	20.23	0.05	--	0.00	117.11	0.05
	16-Dec-2008	20.47	20.46	0.01	--	0.00	117.11	0.01
	29-Dec-2008	20.46	20.44	0.02	--	0.00	117.11	0.02
	15-Jan-2009	18.62	18.07	0.55	--	0.33	117.44	SHEEN
	23-Jan-2009	18.85	17.93	0.92	--	0.40	117.84	0.01
	29-Jan-2009	18.42	18.28	0.14	--	0.26	118.10	SHEEN
	4-Feb-2009	18.31	18.03	0.28	--	0.79	118.89	0.01
	12-Feb-2009	18.53	18.40	0.13	--	0.60	119.49	SHEEN
	19-Feb-2009	18.88	18.81	0.07	--	0.00	119.49	0.07
	10-Mar-2009	19.15	19.12	0.03	--	0.05	119.54	0.03
	27-Mar-2009	19.06	19.03	0.03	--	0.05	119.59	0.03
	16-Apr-2009	18.70	18.67	0.03	--	0.00	119.59	0.03
	14-May-2009	18.51	18.48	0.03	--	0.00	119.59	0.03
	5-Jun-2009	17.95	17.94	0.01	--	0.05	119.64	SHEEN
	13-Jul-2009	19.28	19.28	0.00	--	0.00	119.64	SHEEN
	10-Aug-2009	20.10	20.10	0.00	--	0.00	119.64	SHEEN
	9-Sep-2009	20.84	20.82	0.02	--	0.00	119.64	0.02
	15-Oct-2009	20.84	20.80	0.04	--	0.00	119.64	0.04
	18-Nov-2009	20.46	20.46	0.00	--	0.00	119.64	SHEEN
	16-Dec-2009	19.90	19.90	0.00	--	0.00	119.64	0.00
	13-Jan-2010	20.22	18.38	1.84	--	2.50	122.14	SHEEN
	21-Jan-2010	18.67	17.62	1.05	--	2.10	124.24	SHEEN
	26-Jan-2010	18.45	17.80	0.65	--	1.00	125.24	SHEEN
	5-Feb-2010	--	--	--	--	1.00	126.24	SHEEN
	2-Mar-2010	20.57	17.51	3.06	--	2.65	128.89	0.02
	12-Mar-2010	18.70	17.35	1.35	--	2.25	131.14	0.01
	25-Mar-2010	18.56	17.49	1.07	--	2.00	133.14	0.01
	2-Apr-2010	18.15	17.23	0.92	--	2.50	135.64	SHEEN
	9-Apr-2010	18.39	17.43	0.96	--	1.25	136.89	0.01
	16-Apr-2010	18.44	17.39	1.05	--	1.25	138.14	0.03
	23-Apr-2010	18.44	17.60	0.84	--	2.00	140.14	0.01
	4-May-2010	19.58	17.59	1.99	--	2.25	142.39	0.02
	8-Jun-2010	17.65	16.05	1.60	--	1.50	143.89	0.05
	9-Jul-2010	19.73	16.80	2.93	--	3.75	147.64	0.01
	23-Jul-2010	19.05	17.90	1.15	--	1.25	148.89	0.01
	6-Aug-2010	18.66	18.47	0.19	--	1.30	150.19	0.01
	19-Aug-2010	18.96	18.90	0.06	--	0.00	150.19	0.01
	27-Aug-2010	18.91	18.88	0.03	--	0.50	150.69	0.01
	17-Sep-2010	19.44	19.43	0.01	--	0.00	150.69	0.01
	8-Oct-2010	19.66	19.63	0.03	--	0.00	150.69	0.03
	11-Nov-2010	19.96	19.92	0.04	--	0.00	150.69	0.04
	15-Dec-2010	19.93	16.93	3.00	--	5.00	155.69	0.02
	21-Dec-2010	18.68	16.39	2.29	--	2.25	157.94	0.03
	30-Dec-2010	17.84	15.03	2.81	--	3.00	160.94	0.02
	6-Jan-2011	15.81	15.62	0.19	--	2.00	162.94	0.01
	13-Jan-2011	16.30	16.07	0.23	--	1.00	163.94	0.01
	19-Jan-2011	15.76	15.63	0.13	--	0.75	164.69	0.03
	28-Jan-2011	15.55	15.43	0.12	--	0.75	165.44	0.02
	9-Feb-2011	16.92	16.13	0.79	--	2.00	167.44	0.01
	23-Feb-2011	16.30	16.29	0.01	--	0.00	167.44	0.01
	9-Mar-2011	15.82	15.53	0.29	--	0.75	168.19	0.02
	29-Mar-2011	16.25	15.27	0.98	--	1.25	169.44	0.02
	21-Apr-2011	16.11	14.84	1.27	--	1.00	170.44	0.01
	9-Jun-2011	15.15	14.33	0.82	--	0.95	171.39	0.02
	7-Jul-2011	15.27	15.06	0.21	--	0.50	171.89	0.01
	3-Aug-2011	18.35	16.23	2.12	--	2.00	173.89	0.01
	8-Sep-2011	18.76	18.26	0.50	--	0.50	174.39	0.02
	3-Oct-2011	19.09	18.89	0.20	--	0.50	174.89	0.02
	10-Nov-2011	19.53	19.50	0.03	--	0.30	175.19	0.03
	1-Dec-2011	19.19	19.18	0.01	--	0.00	175.19	0.01
	6-Jan-2012	19.15	--	--	--	0.25	175.44	--
	25-Jan-2012	--	--	--	--	0.10	175.54	--
	3-Mar-2012	19.80	18.00	1.80	--	4.00	179.54	0.26
	6-Mar-2012	18.90	17.57	1.33	--	1.50	181.04	SHEEN
	14-Mar-2012	18.62	17.19	1.43	--	2.55	183.59	0.01
	22-Mar-2012	18.67	16.43	2.24	--	1.50	185.09	0.01
	29-Mar-2012	16.25	15.84	0.41	--	2.00	187.09	0.03
	5-Apr-2012	14.35	14.35	0.00	--	0.50	187.59	SHEEN
	13-Apr-2012	14.37	14.33	0.04	--	0.55	188.14	0.04
	13-Apr-2012	16.65	15.26	1.39	--	2.30	190.44	0.02
	14-May-2012	--	--	--	--	0.79	191.23	--
	25-May-2012	16.58	15.32	1.26	--	1.75	192.98	SHEEN
	12-Jun-2012	15.67	15.61	0.06	--	1.25	194.23	SHEEN

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>HC-6S</b> (32.62)	27-Aug-2003	18.93	NP	0.00	13.69	0.00	0.00	0.00
	3-Sep-2003	19.00	NP	0.00	13.62	0.00	0.00	0.00
	11-Sep-2003	19.11	NP	0.00	13.51	0.00	0.00	0.00
	17-Sep-2003	19.20	NP	0.00	13.42	0.00	0.00	0.00
	30-Sep-2003	19.15	NP	0.00	13.47	0.00	0.00	0.00
	14-Oct-2003	19.19	NP	0.00	13.43	0.00	0.00	0.00
	29-Oct-2003	19.29	NP	0.00	13.33	0.00	0.00	0.00
	13-Nov-2003	19.33	NP	0.00	13.29	0.00	0.00	0.00
	26-Nov-2003	19.13	NP	0.00	13.49	0.00	0.00	0.00
	24-Dec-2003	18.60	NP	0.00	14.02	0.00	0.00	0.00
	21-Jan-2004	17.31	NP	0.00	15.31	0.00	0.00	0.00
	25-Feb-2004	17.81	NP	0.00	14.81	0.00	0.00	0.00
	24-Mar-2004	16.31	NP	0.00	16.31	0.00	0.00	0.00
<b>HC-6D</b> (32.48)	27-Aug-2003	21.90	NP	0.00	10.58	0.00	0.00	0.00
	3-Sep-2003	21.99	NP	0.00	10.49	0.00	0.00	0.00
	11-Sep-2003	22.04	NP	0.00	10.44	0.00	0.00	0.00
	17-Sep-2003	22.10	NP	0.00	10.38	0.00	0.00	0.00
	30-Sep-2003	22.06	NP	0.00	10.42	0.00	0.00	0.00
	14-Oct-2003	22.16	NP	0.00	10.32	0.00	0.00	0.00
	29-Oct-2003	22.04	NP	0.00	10.44	0.00	0.00	0.00
	13-Nov-2003	22.10	NP	0.00	10.38	0.00	0.00	0.00
	26-Nov-2003	21.96	NP	0.00	10.52	0.00	0.00	0.00
	24-Dec-2003	21.35	NP	0.00	11.13	0.00	0.00	0.00
	21-Jan-2004	19.88	NP	0.00	12.60	0.00	0.00	0.00
	25-Feb-2004	20.71	NP	0.00	11.77	0.00	0.00	0.00
	24-Mar-2004	17.88	NP	0.00	14.60	0.00	0.00	0.00
<b>HC-10</b> (29.30)	27-Aug-2003	21.98	17.71	4.27	11.12	2.00	2.00	0.21
	3-Sep-2003	20.06	18.03	2.03	11.05	0.50	2.50	0.04
	11-Sep-2003	19.61	18.46	1.15	10.71	0.10	2.60	0.03
	17-Sep-2003	19.77	18.65	1.12	10.53	0.20	2.80	0.03
	30-Sep-2003	19.69	18.99	0.70	10.23	0.20	3.00	0.01
	14-Oct-2003	19.68	18.85	0.83	10.36	0.30	3.30	0.02
	29-Oct-2003	19.62	18.83	0.79	10.38	0.10	3.40	0.07
	13-Nov-2003	19.60	19.05	0.55	10.19	Trace	3.40	0.01
	19-Nov-2003	19.60	19.15	0.45	10.10	0.10	3.50	0.03
	26-Nov-2003	19.51	19.00	0.51	10.24	0.10	3.60	0.01
	3-Dec-2003	19.27	18.89	0.38	10.37	0.10	3.70	0.01
	10-Dec-2003	19.88	19.60	0.28	9.67	0.10	3.80	0.01
	17-Dec-2003	18.66	18.36	0.30	10.91	0.10	3.90	0.01
	24-Dec-2003	17.98	17.76	0.22	11.52	Trace	3.90	< 0.01
	9-Jan-2004	17.11	16.84	0.27	12.43	0.10	4.00	0.01
	15-Jan-2004	17.00	16.71	0.29	12.56	0.10	4.10	0.01
	21-Jan-2004	16.01	15.85	0.16	13.43	0.10	4.20	0.01
	29-Jan-2004	16.00	15.30	0.70	13.92	0.30	4.50	0.01
	3-Feb-2004	16.10	15.40	0.70	13.82	0.30	4.80	0.01
	12-Feb-2004	15.87	15.28	0.59	13.96	0.10	4.90	0.01
	18-Feb-2004	16.22	15.41	0.81	13.80	0.10	5.00	< 0.01
	25-Feb-2004	15.47	14.86	0.61	14.37	0.10	5.10	< 0.01
	3-Mar-2004	15.95	15.55	0.40	13.71	0.10	5.20	0.01
	10-Mar-2004	16.10	15.65	0.45	13.60	0.05	5.25	0.01
	18-Mar-2004	16.03	15.59	0.44	13.66	0.05	5.30	< 0.01
	24-Mar-2004	16.33	15.99	0.34	13.27	0.05	5.35	< 0.01
	1-Apr-2004	16.50	15.95	0.55	13.29	0.08	5.43	< 0.01
	14-Jan-2005	18.90	18.49	0.41	10.76	0.10	5.53	0.09
	21-Jan-2005	18.60	18.25	0.35	11.01	1.00	6.53	0.10
	28-Jan-2005	18.48	18.22	0.26	11.05	0.15	6.68	0.09
	4-Feb-2005	18.49	18.27	0.22	11.01	0.20	6.88	0.03
	11-Feb-2005	18.30	18.12	0.18	11.16	0.05	6.93	0.06
	18-Feb-2005	18.26	18.11	0.15	11.17	0.10	7.03	0.06
	25-Feb-2005	18.50	18.37	0.13	10.92	0.05	7.08	0.06
	4-Mar-2005	18.64	18.52	0.12	10.77	0.05	7.13	0.02
	11-Mar-2005	18.58	18.48	0.10	10.81	0.15	7.28	0.01
	18-Mar-2005	18.56	18.47	0.09	10.82	0.00	7.28	0.09
	25-Mar-2005	18.86	18.75	0.11	10.54	0.05	7.33	0.01
	1-Apr-2005	18.52	18.46	0.06	10.83	0.00	7.33	0.06
	14-Apr-2005	18.44	18.43	0.01	10.87	0.10	7.43	0.01
	30-Apr-2005	18.22	18.14	0.08	11.15	0.00	7.43	0.08
	13-May-2005	18.88	18.82	0.06	10.47	0.00	7.43	0.06
	31-May-2005	17.38	17.32	0.06	11.97	0.00	7.43	0.06
	24-Jun-2005	17.55	17.50	0.05	11.79	0.00	7.43	0.05
	29-Jul-2005	18.16	18.09	0.07	11.20	0.00	7.43	0.07
	26-Aug-2005	18.60	18.52	0.08	10.77	0.00	7.43	0.08
	24-Sep-2005	19.05	18.90	0.15	10.38	0.05	7.48	0.00
	10-Oct-2005	19.25	19.05	0.20	10.23	0.50	7.98	0.04
	21-Oct-2005	19.25	19.19	0.06	10.10	0.00	7.98	0.06
	28-Nov-2005	18.70	18.65	0.05	10.64	0.00	7.98	0.05
	3-Jan-2006	17.35	17.30	0.05	11.99	0.00	7.98	0.05
	17-Feb-2006	15.33	14.79	0.54	14.45	1.00	8.98	0.08
	3-Mar-2006	15.43	14.89	0.54	14.35	0.25	9.23	0.06
	13-Mar-2006	15.54	15.15	0.39	14.11	0.00	0.00	0.39
	27-Jun-2006	15.58	15.41	0.17	13.87	0.10	9.33	0.01
	19-Sep-2006	19.18	18.34	0.84	10.87	0.35	9.68	0.02
	13-Dec-2006	17.16	16.63	0.53	12.61	0.25	9.93	0.02

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>HC-10 (continued)</b>  (29.30)	29-Mar-2007	15.91	15.33	0.58	13.91	0.25	10.18	0.08
	27-Jun-2007	17.50	17.03	0.47	12.22	2.00	12.18	0.07
	19-Sep-2007	19.09	18.70	0.39	10.56	0.25	12.43	0.01
	6-Dec-2007	18.76	18.49	0.27	10.78	0.40	12.83	0.00
	10-Mar-2008	16.16	15.82	0.34	13.44	0.00	12.83	0.08
	12-Mar-2008	16.28	15.82	0.46	13.43	0.50	13.33	SHEEN
	13-Jun-2008	15.23	15.10	0.13	14.19	0.26	13.59	SHEEN
	9-Sep-2008	18.46	18.40	0.06	10.89	0.79	14.38	SHEEN
	29-Dec-2008	19.03	18.81	0.22	10.47	0.33	14.71	0.01
	10-Mar-2009	17.34	17.32	0.02	11.98	0.00	14.71	0.02
	4-Jun-2009	16.75	16.54	0.21	12.74	0.08	14.79	0.01
	9-Sep-2009	19.01	18.83	0.18	10.45	0.07	14.86	SHEEN
	15-Dec-2009	18.32	18.23	0.09	11.06	0.00	14.86	0.09
	12-Mar-2010	16.62	16.21	0.41	13.04	0.25	15.11	0.00
	25-Mar-2010	16.35	16.30	0.05	12.99	0.00	15.11	0.05
	16-Apr-2010	16.50	16.09	0.41	13.16	0.25	15.36	0.01
	23-Apr-2010	16.77	16.48	0.29	12.79	0.13	15.49	0.00
	4-May-2010	16.71	16.63	0.08	12.66	0.00	15.49	0.08
	8-Jun-2010	15.53	15.27	0.26	14.00	0.25	15.74	SHEEN
	9-Jul-2010	--	--	--	--	--	--	--
	23-Jul-2010	--	--	--	--	--	--	--
	6-Aug-2010	17.34	16.95	0.39	12.31	0.25	15.99	0.02
	19-Aug-2010	17.59	17.30	0.29	11.97	0.25	16.24	SHEEN
	27-Aug-2010	17.71	17.49	0.22	11.79	0.25	16.49	0.01
	17-Sep-2010	18.01	17.82	0.19	11.46	0.25	16.74	0.02
	8-Oct-2010	18.36	18.18	0.18	11.10	0.10	16.84	0.01
	11-Nov-2010	18.15	18.02	0.13	11.27	0.10	16.94	SHEEN
	15-Dec-2010	16.32	16.15	0.17	13.13	0.10	17.04	0.01
	21-Dec-2010	15.88	15.72	0.16	13.56	0.20	17.24	0.01
	30-Dec-2010	-	--	--	--	--	--	--
	6-Jan-2011	15.22	15.08	0.14	14.20	0.25	17.49	0.02
	13-Jan-2011	15.34	15.31	0.03	13.99	0.00	17.49	0.03
	19-Jan-2011	15.09	14.76	0.33	14.50	0.25	17.74	SHEEN
	28-Jan-2011	14.41	14.12	0.29	15.15	0.25	17.99	SHEEN
	9-Feb-2011	15.35	15.19	0.16	14.09	0.25	18.24	SHEEN
	23-Feb-2011	15.31	15.11	0.20	14.17	0.10	18.34	0.03
	9-Mar-2011	15.49	15.31	0.18	13.97	0.25	18.59	0.02
	29-Mar-2011	14.98	14.64	0.34	14.62	0.25	18.84	SHEEN
	21-Apr-2011	14.42	14.08	0.34	15.18	0.30	19.14	SHEEN
	6-May-2011	14.57	14.23	0.34	15.03	0.15	19.29	SHEEN
	9-Jun-2011	13.42	13.12	0.30	16.15	0.20	19.49	SHEEN
	7-Jul-2011	13.43	12.84	0.59	16.40	0.25	19.74	0.01
	3-Aug-2011	15.69	15.45	0.24	13.82	0.20	19.94	SHEEN
	8-Sep-2011	17.25	17.04	0.21	12.24	0.25	20.19	0.01
	3-Oct-2011	17.67	17.54	0.13	11.75	0.20	20.39	0.01
	10-Nov-2011	18.26	18.13	0.13	11.16	0.10	20.49	0.1
	1-Dec-2011	17.96	17.88	0.08	11.41	0.00	20.49	0.08
	6-Jan-2012	17.72	17.63	0.09	11.66	0.00	20.49	0.09
	25-Jan-2012	17.16	17.06	0.10	12.23	0.00	20.49	0.10
	3-Mar-2012	17.11	16.93	0.18	12.35	0.20	20.69	0.01
	14-Mar-2012	16.35	16.22	0.13	13.07	0.15	20.84	SHEEN
	22-Mar-2012	15.80	15.67	0.13	13.62	0.12	20.96	SHEEN
	29-Mar-2012	15.07	14.99	0.08	14.30	0.00	20.96	0.08
	5-Apr-2012	14.46	14.36	0.10	14.93	0.13	21.08	SHEEN
	13-Apr-2012	14.41	14.41	0.00	14.89	0.00	21.08	0.00
	23-Apr-2012	14.58	14.38	0.20	14.90	0.25	21.33	SHEEN
	14-May-2012	14.31	14.16	0.15	15.12	0.20	21.53	0.00
	25-May-2012	14.36	14.33	0.03	14.97	0.00	21.53	0.03
	12-Jun-2012	14.81	14.61	0.20	14.67	0.10	21.63	0.01

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>HC-12S</b> (29.19)	27-Aug-2003	14.14	NP	0.00	15.05	0.00	0.00	0.00
	3-Sep-2003	14.20	NP	0.00	14.99	0.00	0.00	0.00
	11-Sep-2003	14.34	NP	0.00	14.85	0.00	0.00	0.00
	17-Sep-2003	14.44	NP	0.00	14.75	0.00	0.00	0.00
	30-Sep-2003	14.39	NP	0.00	14.80	0.00	0.00	0.00
	14-Oct-2003	14.44	NP	0.00	14.75	0.00	0.00	0.00
	29-Oct-2003	14.60	NP	0.00	14.59	0.00	0.00	0.00
	13-Nov-2003	14.63	NP	0.00	14.56	0.00	0.00	0.00
	26-Nov-2003	14.50	NP	0.00	14.69	0.00	0.00	0.00
	24-Dec-2003	14.01	NP	0.00	15.18	0.00	0.00	0.00
	21-Jan-2004	12.75	NP	0.00	16.44	0.00	0.00	0.00
	25-Feb-2004	13.56	NP	0.00	15.63	0.00	0.00	0.00
	24-Mar-2004	12.97	NP	0.00	16.22	0.00	0.00	0.00
<b>HC-12D</b> (28.91)	27-Aug-2003	18.26	NP	0.00	10.65	0.00	0.00	0.00
	3-Sep-2003	18.34	NP	0.00	10.57	0.00	0.00	0.00
	11-Sep-2003	18.65	NP	0.00	10.26	0.00	0.00	0.00
	17-Sep-2003	18.71	NP	0.00	10.20	0.00	0.00	0.00
	30-Sep-2003	18.60	NP	0.00	10.31	0.00	0.00	0.00
	14-Oct-2003	18.69	NP	0.00	10.22	0.00	0.00	0.00
	29-Oct-2003	19.01	NP	0.00	9.90	0.00	0.00	0.00
	13-Nov-2003	19.16	NP	0.00	9.75	0.00	0.00	0.00
	26-Nov-2003	18.98	NP	0.00	9.93	0.00	0.00	0.00
	24-Dec-2003	17.89	NP	0.00	11.02	0.00	0.00	0.00
	21-Jan-2004	17.63	NP	0.00	11.28	0.00	0.00	0.00
	25-Feb-2004	15.03	NP	0.00	13.88	0.00	0.00	0.00
	24-Mar-2004	17.17	NP	0.00	11.74	0.00	0.00	0.00
<b>HC-15</b> (33.16)	27-Aug-2003	15.59	NP	0.00	17.57	0.00	0.00	0.00
	3-Sep-2003	15.68	NP	0.00	17.48	0.00	0.00	0.00
	11-Sep-2003	15.85	NP	0.00	17.31	0.00	0.00	0.00
	17-Sep-2003	15.98	NP	0.00	17.18	0.00	0.00	0.00
	30-Sep-2003	16.03	NP	0.00	17.13	0.00	0.00	0.00
	14-Oct-2003	16.07	NP	0.00	17.09	0.00	0.00	0.00
	29-Oct-2003	16.11	NP	0.00	17.05	0.00	0.00	0.00
	13-Nov-2003	16.19	NP	0.00	16.97	0.00	0.00	0.00
	26-Nov-2003	16.03	NP	0.00	17.13	0.00	0.00	0.00
	24-Dec-2003	15.36	NP	0.00	17.80	0.00	0.00	0.00
	21-Jan-2004	14.76	NP	0.00	18.40	0.00	0.00	0.00
	25-Feb-2004	14.35	NP	0.00	18.81	0.00	0.00	0.00
	24-Mar-2004	14.66	NP	0.00	18.50	0.00	0.00	0.00
	(33.16)	--	--	--	--	--	--	--
	14-Jan-2005	--	--	--	--	--	--	--
	21-Jan-2005	15.45	NP	0.00	17.71	0.00	0.00	0.00
	28-Jan-2005	15.44	15.43	0.01	17.73	0.00	0.00	0.01
	25-Feb-2005	15.45	15.45	0.00	17.71	0.00	0.00	0.00
	25-Mar-2005	15.61	15.61	0.00	17.55	0.00	0.00	0.00
	30-Apr-2005	15.25	NP	0.00	17.91	0.00	0.00	0.00
	13-May-2005	15.32	NP	0.00	17.84	0.00	0.00	0.00
31-May-2005		Abandoned						
<b>HC-16</b> (32.83)	27-Aug-2003	15.75	NP	0.00	17.08	0.00	0.00	0.00
	3-Sep-2003	15.83	NP	0.00	17.00	0.00	0.00	0.00
	11-Sep-2003	16.00	NP	0.00	16.83	0.00	0.00	0.00
	17-Sep-2003	16.16	NP	0.00	16.67	0.00	0.00	0.00
	30-Sep-2003	16.15	NP	0.00	16.68	0.00	0.00	0.00
	14-Oct-2003	16.18	NP	0.00	16.65	0.00	0.00	0.00
	29-Oct-2003	16.28	NP	0.00	16.55	0.00	0.00	0.00
	13-Nov-2003	16.28	NP	0.00	16.55	0.00	0.00	0.00
	26-Nov-2003	16.15	NP	0.00	16.68	0.00	0.00	0.00
	24-Dec-2003	15.49	NP	0.00	17.34	0.00	0.00	0.00
	21-Jan-2004	15.88	NP	0.00	16.95	0.00	0.00	0.00
	25-Feb-2004	14.45	NP	0.00	18.38	0.00	0.00	0.00
	24-Mar-2004	14.76	NP	0.00	18.07	0.00	0.00	0.00
	14-Jan-2005	15.71	NP	0.00	17.12	0.00	0.00	0.00
	28-Jan-2005	15.67	15.65	0.02	17.18	0.00	0.00	0.02
	25-Feb-2005	15.66	15.65	0.01	17.18	0.00	0.00	0.01
	25-Mar-2005	15.81	15.80	0.01	17.03	0.00	0.00	0.01
	30-Apr-2005	15.58	NP	0.00	17.25	0.00	0.00	0.00
	31-May-2005	15.35	NP	0.00	17.48	0.00	0.00	0.00
	24-Jun-2005	15.36	NP	0.00	17.47	0.00	0.00	0.00
	29-Jul-2005	15.52	NP	0.00	17.31	0.00	0.00	0.00
	26-Aug-2005	15.70	NP	0.00	17.13	0.00	0.00	0.00
	24-Sep-2005	15.85	NP	0.00	16.98	0.00	0.00	0.00
	21-Oct-2005	15.95	NP	0.00	16.88	0.00	0.00	0.00
	28-Nov-2005	15.63	NP	0.00	17.20	0.00	0.00	0.00

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>HC-16</b> <i>(continued)</i>	3-Jan-2006	15.14	NP	0.00	17.69	0.00	0.00	0.00
	17-Feb-2006	14.20	NP	0.00	18.63	0.00	0.00	0.00
	13-Mar-2006	14.40	NP	0.00	18.43	0.00	0.00	0.00
	27-Jun-2006	14.98	NP	0.00	17.85	0.00	0.00	0.00
	19-Sep-2006	15.62	NP	0.00	17.21	0.00	0.00	0.00
	13-Dec-2006	15.04	NP	0.00	17.79	0.00	0.00	0.00
	29-Mar-2007	14.66	NP	0.00	18.17	0.00	0.00	0.00
	27-Jun-2007	15.31	NP	0.00	17.52	0.00	0.00	0.00
	18-Sep-2007	15.95	NP	0.00	16.88	0.00	0.00	0.00
	6-Dec-2007	15.81	NP	0.00	17.02	0.00	0.00	0.00
	10-Mar-2008	14.84	NP	0.00	17.99	0.00	0.00	0.00
	12-Jun-2008	15.10	NP	0.00	17.73	0.00	0.00	0.00
	8-Sep-2008	15.87	NP	0.00	16.96	0.00	0.00	0.00
	29-Dec-2008	15.85	NP	0.00	16.98	0.00	0.00	0.00
	10-Mar-2009	15.44	NP	0.00	17.39	0.00	0.00	0.00
	4-Jun-2009	15.47	NP	0.00	17.36	0.00	0.00	0.00
<b>HC-17R</b> <i>(33.61)</i>	13-Nov-2003	16.94	NP	0.00	16.67	0.00	0.00	0.00
	26-Nov-2003	16.41	NP	0.00	17.20	0.00	0.00	0.00
	24-Dec-2003	16.41	NP	0.00	17.20	0.00	0.00	0.00
	9-Jan-2004	16.05	16.02	0.03	13.28	0.00	0.00	0.03
	21-Jan-2004	15.82	15.79	0.03	13.51	0.00	0.00	0.03
	3-Feb-2004	15.90	15.88	0.02	13.42	0.00	0.00	0.02
	18-Feb-2004	15.71	15.55	0.16	13.73	0.03	0.03	< 0.01
	25-Feb-2004	15.58	15.48	0.10	13.81	0.02	0.05	< 0.01
	10-Mar-2004	15.69	15.60	0.09	13.69	0.00	0.05	0.09
	24-Mar-2004	16.87	16.78	0.09	12.51	0.00	0.05	0.09
	14-Jan-2005	17.60	NP	0.00	16.01	NP	NP	0.00
	28-Jan-2005	17.47	SHEEN	16.14	0.00	0.05	0.00	
	25-Feb-2005	17.52	0.00	16.09	0.00	0.05	0.00	
	25-Mar-2005	17.65	17.63	0.02	15.98	0.00	0.05	0.02
	30-Apr-2005	17.35	NP	0.00	16.26	0.00	0.05	0.00
	31-May-2005	17.15	NP	0.00	16.46	0.00	0.05	0.00
	24-Jun-2005	17.14	NP	0.00	16.47	0.00	0.05	0.00
	29-Jul-2005	17.33	NP	0.00	16.28	0.00	0.05	0.00
	26-Aug-2005	17.46	NP	0.00	16.15	0.00	0.05	0.00
	24-Sep-2005	17.55	NP	0.00	16.06	0.00	0.05	0.00
	21-Oct-2005	17.62	NP	0.00	15.99	0.00	0.05	0.00
	28-Nov-2005	17.30	NP	0.00	16.31	0.00	0.05	0.00
	3-Jan-2006	16.73	NP	0.00	16.88	0.00	0.05	0.00
	17-Feb-2006	16.20	NP	0.00	17.41	0.00	0.05	0.00
	13-Mar-2006	16.36	NP	0.00	17.25	0.00	0.05	0.00
	27-Jun-2006	16.82	NP	0.00	16.79	0.00	0.05	0.00
	19-Sep-2006	17.47	NP	0.00	16.14	0.00	0.05	0.00
	13-Dec-2006	16.93	NP	0.00	16.68	0.00	0.05	0.00
<b>HC-17R</b> <i>(33.61)</i>	29-Mar-2007	16.70	NP	0.00	16.91	0.00	0.05	0.00
	27-Jun-2007	17.29	NP	0.00	16.32	0.00	0.05	0.00
	18-Sep-2007	17.89	NP	0.00	15.72	0.00	0.05	0.00
	6-Dec-2007	17.24	NP	0.00	16.37	0.00	0.05	0.00
	10-Mar-2008	16.85	NP	0.00	16.76	0.00	0.05	0.00
	12-Jun-2008	16.88	NP	0.00	16.73	0.00	0.05	0.00
	8-Sep-2008	17.85	NP	0.00	15.76	0.00	0.05	0.00
	29-Dec-2008	17.89	NP	0.00	15.72	0.00	0.05	0.00
	10-Mar-2009	17.61	NP	0.00	16.00	0.00	0.05	0.00
	4-Jun-2009	17.54	NP	0.00	16.07	0.00	0.05	0.00
<b>HC-18</b> <i>(33.29)</i>	13-Nov-2003	16.37	NP	0.00	16.92	0.00	0.00	0.00
	26-Nov-2003	15.83	NP	0.00	17.46	0.00	0.00	0.00
	24-Dec-2003	15.38	NP	0.00	17.91	0.00	0.00	0.00
	21-Jan-2004	14.73	NP	0.00	18.56	0.00	0.00	0.00
	25-Feb-2004	14.37	NP	0.00	18.92	0.00	0.00	0.00
	24-Mar-2004	14.68	NP	0.00	18.61	0.00	0.00	0.00
	14-Jan-2005	15.71	NP	0.00	17.58	0.00	0.00	0.00
	28-Jan-2005	15.60	NP	0.00	17.69	0.00	0.00	0.00
	25-Feb-2005	15.65	15.65	0.00	17.64	0.00	0.00	0.00
	25-Mar-2005	15.81	15.81	0.00	17.48	0.00	0.00	0.00
	30-Apr-2005	16.50	NP	0.00	16.79	0.00	0.00	0.00
	31-May-2005	15.34	NP	0.00	17.95	0.00	0.00	0.00
	24-Jun-2005	15.35	NP	0.00	17.94	0.00	0.00	0.00
	29-Jul-2005	15.52	NP	0.00	17.77	0.00	0.00	0.00
	26-Aug-2005	15.67	NP	0.00	17.62	0.00	0.00	0.00
	24-Sep-2005	15.83	NP	0.00	17.46	0.00	0.00	0.00
	21-Oct-2005	15.95	NP	0.00	17.34	0.00	0.00	0.00
	28-Nov-2005	15.63	NP	0.00	17.66	0.00	0.00	0.00
	3-Jan-2006	15.06	NP	0.00	18.23	0.00	0.00	0.00
	17-Feb-2006	14.13	NP	0.00	19.16	0.00	0.00	0.00
	13-Mar-2006	14.35	NP	0.00	18.94	0.00	0.00	0.00
	27-Jun-2006	15.97	NP	0.00	17.32	0.00	0.00	0.00
	19-Sep-2006	15.65	NP	0.00	17.64	0.00	0.00	0.00
	13-Dec-2006	15.09	NP	0.00	18.20	0.00	0.00	0.00
	29-Mar-2007	14.65	NP	0.00	18.64	0.00	0.00	0.00
	27-Jun-2007	15.35	NP	0.00	17.94	0.00	0.00	0.00
	18-Sep-2007	15.99	NP	0.00	17.30	0.00	0.00	0.00
	6-Dec-2007	15.89	NP	0.00	17.40	0.00	0.00	0.00
	10-Mar-2008	14.79	NP	0.00	18.50	0.00	0.00	0.00
	12-Jun-2008	15.12	NP	0.00	18.17	0.00	0.00	0.00

Please refer to notes at end of table.

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TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>HC-18</b> <i>(continued)</i>	8-Sep-2008	15.96	NP	0.00	17.33	0.00	0.00	0.00
	29-Dec-2008	16.43	NP	0.00	16.86	0.00	0.00	0.00
	10-Mar-2009	15.45	NP	0.00	17.84	0.00	0.00	0.00
	4-Jun-2009	15.51	NP	0.00	17.78	0.00	0.00	0.00
<b>HC-19</b> <i>(33.05)</i>	13-Nov-2003	17.92	NP	0.00	15.13	0.00	0.00	0.00
	26-Nov-2003	17.79	NP	0.00	15.26	0.00	0.00	0.00
	24-Dec-2003	16.85	NP	0.00	16.20	0.00	0.00	0.00
	21-Jan-2004	16.29	NP	0.00	16.76	0.00	0.00	0.00
	25-Feb-2004	18.11	NP	0.00	14.94	0.00	0.00	0.00
	24-Mar-2004	16.41	NP	0.00	16.64	0.00	0.00	0.00
	14-Jan-2005	17.40	NP	0.00	15.65	0.00	0.00	0.00
	28-Jan-2005	17.29	17.29	SHEEN	15.76	0.00	0.00	0.00
	25-Feb-2005	17.29	17.29	0.00	15.76	0.00	0.00	0.00
	25-Mar-2005	17.45	17.45	0.00	15.60	0.00	0.00	0.00
	30-Apr-2005	17.14	NP	0.00	15.91	0.00	0.00	0.00
	31-May-2005	15.90	NP	0.00	17.15	0.00	0.00	0.00
	24-Jun-2005	16.95	NP	0.00	16.10	0.00	0.00	0.00
	29-Jul-2005	17.11	NP	0.00	15.94	0.00	0.00	0.00
	26-Aug-2005	17.28	NP	0.00	15.77	0.00	0.00	0.00
	24-Sep-2005	17.40	NP	0.00	15.65	0.00	0.00	0.00
	21-Oct-2005	17.43	NP	0.00	15.62	0.00	0.00	0.00
	28-Nov-2005	17.09	NP	0.00	15.96	0.00	0.00	0.00
	3-Jan-2006	16.30	NP	0.00	16.75	0.00	0.00	0.00
	17-Feb-2006	15.96	NP	0.00	17.09	0.00	0.00	0.00
	13-Mar-2006	16.13	NP	0.00	16.92	0.00	0.00	0.00
	27-Jun-2006	16.60	NP	0.00	16.45	0.00	0.00	0.00
	19-Sep-2006	17.26	NP	0.00	15.79	0.00	0.00	0.00
	13-Dec-2006	16.67	NP	0.00	16.38	0.00	0.00	0.00
	29-Mar-2007	16.36	NP	0.00	16.69	0.00	0.00	0.00
	27-Jun-2007	17.04	NP	0.00	16.01	0.00	0.00	0.00
	18-Sep-2007	17.63	NP	0.00	15.42	0.00	0.00	0.00
	6-Dec-2007	16.59	NP	0.00	16.46	0.00	0.00	0.00
	10-Mar-2008	16.48	NP	0.00	16.57	0.00	0.00	0.00
	12-Jun-2008	16.01	NP	0.00	17.04	0.00	0.00	0.00
	8-Sep-2008	17.64	NP	0.00	15.41	0.00	0.00	0.00
	29-Dec-2008	17.55	NP	0.00	15.50	0.00	0.00	0.00
	10-Mar-2009	17.34	NP	0.00	15.71	0.00	0.00	0.00
	4-Jun-2009	17.27	NP	0.00	15.78	0.00	0.00	0.00
	9-Sep-2009	18.03	NP	0.00	15.02	0.00	0.00	0.00
	15-Dec-2009	17.52	NP	0.00	15.53	0.00	0.00	0.00
	11-Mar-2010	16.75	NP	0.00	16.30	0.00	0.00	0.00
	8-Jun-2010	16.50	NP	0.00	16.55	0.00	0.00	0.00
	16-Sep-2010	17.26	NP	0.00	15.79	0.00	0.00	0.00
	13-Dec-2010	16.26	NP	0.00	16.79	0.00	0.00	0.00
	9-Jun-2011	15.12	NP	0.00	17.93	0.00	0.00	0.00
	1-Dec-2011	17.03	NP	0.00	16.02	0.00	0.00	0.00
	11-Jun-2012	16.30	NP	0.00	16.75	0.00	0.00	0.00
<b>HC-20</b> <i>(32.26)</i>	13-Nov-2003	16.18	NP	0.00	16.08	0.00	0.00	0.00
	26-Nov-2003	15.99	NP	0.00	16.27	0.00	0.00	0.00
	24-Dec-2003	15.36	NP	0.00	16.90	0.00	0.00	0.00
	21-Jan-2004	14.78	NP	0.00	17.48	0.00	0.00	0.00
	25-Feb-2004	14.50	14.46	0.04	17.80	0.00	0.00	0.04
	10-Mar-2004	14.70	14.65	0.05	17.60	0.00	0.00	0.05
	24-Mar-2004	14.85	14.81	0.04	17.45	0.00	0.00	0.04
	14-Jan-2005	--	--	--	--	--	--	--
	21-Jan-2005	17.40	NP	0.00	14.86	0.00	0.00	0.00
	28-Jan-2005	15.40	NP	0.00	16.86	0.00	0.00	0.00
	25-Feb-2005	15.36	NP	0.00	16.90	0.00	0.00	0.00
	25-Mar-2005	15.56	15.56	0.00	16.70	0.00	0.00	0.00
	30-Apr-2005	15.31	NP	0.00	16.95	0.00	0.00	0.00
	31-May-2005	15.17	NP	0.00	17.09	0.00	0.00	0.00
	24-Jun-2005	15.17	NP	0.00	17.09	0.00	0.00	0.00
	29-Jul-2005	15.33	NP	0.00	16.93	0.00	0.00	0.00
	26-Aug-2005	15.49	NP	0.00	16.77	0.00	0.00	0.00
	24-Sep-2005	16.69	NP	0.00	15.57	0.00	0.00	0.00
	21-Oct-2005	15.70	NP	0.00	16.56	0.00	0.00	0.00
	28-Nov-2005	15.32	NP	0.00	16.94	0.00	0.00	0.00
	3-Jan-2006	14.82	NP	0.00	17.44	0.00	0.00	0.00
	17-Feb-2006	14.16	NP	0.00	18.10	0.00	0.00	0.00
	13-Mar-2006	14.30	NP	0.00	17.96	0.00	0.00	0.00
	19-Sep-2006	15.58	NP	0.00	16.68	0.00	0.00	0.00
	13-Dec-2006	14.78	NP	0.00	17.48	0.00	0.00	0.00
	29-Mar-2007	14.50	NP	0.00	17.76	0.00	0.00	0.00
	27-Jun-2007	15.15	NP	0.00	17.11	0.00	0.00	0.00
	18-Sep-2007	15.70	NP	0.00	16.56	0.00	0.00	0.00
	6-Dec-2007	15.09	NP	0.00	17.17	0.00	0.00	0.00
	10-Mar-2008	14.71	NP	0.00	17.55	0.00	0.00	0.00
	12-Jun-2008	14.83	NP	0.00	17.43	0.00	0.00	0.00
	8-Sep-2008	15.63	NP	0.00	16.63	0.00	0.00	0.00
	29-Dec-2008	Well inadvertently not gauged during groundwater monitoring event.						
	10-Mar-2009	15.70	NP	0.00	16.56	0.00	0.00	0.00
	4-Jun-2009	15.25	NP	0.00	17.01	0.00	0.00	0.00

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>HC-21</b> (31.95)	13-Nov-2003	17.60	NP	0.00	14.35	0.00	0.00	0.00
	26-Nov-2003	17.41	NP	0.00	14.54	0.00	0.00	0.00
	24-Dec-2003	16.22	NP	0.00	16.04	0.00	0.00	0.00
	21-Jan-2004	15.53	NP	0.00	16.73	0.00	0.00	0.00
	25-Feb-2004	15.32	NP	0.00	16.94	0.00	0.00	0.00
	24-Mar-2004	14.60	NP	0.00	17.66	0.00	0.00	0.00
	14-Jan-2005	16.36	NP	0.00	15.59	0.00	0.00	0.00
	28-Jan-2005	16.53	16.52	0.01	15.43	0.00	0.00	0.00
	25-Feb-2005	16.57	16.57	0.00	15.38	0.00	0.00	0.00
	25-Mar-2005	16.78	16.78	0.00	15.17	0.00	0.00	0.00
	30-Apr-2005	16.44	NP	0.00	15.51	0.00	0.00	0.00
	31-May-2005	16.18	NP	0.00	15.77	0.00	0.00	0.00
	24-Jun-2005	16.29	NP	0.00	15.66	0.00	0.00	0.00
	29-Jul-2005	16.49	NP	0.00	15.46	0.00	0.00	0.00
	26-Aug-2005	16.65	NP	0.00	15.30	0.00	0.00	0.00
	24-Sep-2005	17.70	NP	0.00	14.25	0.00	0.00	0.00
	21-Oct-2005	16.70	NP	0.00	15.25	0.00	0.00	0.00
	28-Nov-2005	16.21	NP	0.00	15.74	0.00	0.00	0.00
	3-Jan-2006	15.07	NP	0.00	16.88	0.00	0.00	0.00
	17-Feb-2006	14.95	NP	0.00	17.00	0.00	0.00	0.00
	13-Mar-2006	15.02	NP	0.00	16.93	0.00	0.00	0.00
	27-Jun-2006	15.62	NP	0.00	16.33	0.00	0.00	0.00
	19-Sep-2006	16.54	NP	0.00	15.41	0.00	0.00	0.00
	13-Dec-2006	15.53	NP	0.00	16.42	0.00	0.00	0.00
	29-Mar-2007	15.09	NP	0.00	16.86	0.00	0.00	0.00
	27-Jun-2007	16.11	NP	0.00	15.84	0.00	0.00	0.00
	18-Sep-2007	16.84	NP	0.00	15.11	0.00	0.00	0.00
	6-Dec-2007	15.05	NP	0.00	16.90	0.00	0.00	0.00
	10-Mar-2008	15.29	NP	0.00	16.66	0.00	0.00	0.00
	12-Jun-2008	15.36	NP	0.00	16.59	0.00	0.00	0.00
	8-Sep-2008	16.83	NP	0.00	15.12	0.00	0.00	0.00
	29-Dec-2008	16.44	NP	0.00	15.51	0.00	0.00	0.00
	10-Mar-2009	16.40	NP	0.00	15.55	0.00	0.00	0.00
	4-Jun-2009	16.25	NP	0.00	15.70	0.00	0.00	0.00
	9-Sep-2009	17.37	NP	0.00	14.58	0.00	0.00	0.00
	15-Dec-2009	16.32	NP	0.00	15.63	0.00	0.00	0.00
	11-Mar-2010	15.43	NP	0.00	16.52	0.00	0.00	0.00
	8-Jun-2010	15.14	NP	0.00	16.81	0.00	0.00	0.00
	16-Sep-2010	15.39	NP	0.00	16.56	0.00	0.00	0.00
	13-Dec-2010	14.90	NP	0.00	17.05	0.00	0.00	0.00
	9-Jun-2011	13.78	NP	0.00	18.17	0.00	0.00	0.00
	1-Dec-2011	15.94	NP	0.00	16.01	0.00	0.00	0.00
	11-Jun-2012	15.05	NP	0.00	16.90	0.00	0.00	0.00
<b>HC-22</b> (31.91)	13-Nov-2003	16.04	NP	0.00	15.87	0.00	0.00	0.00
	26-Nov-2003	15.88	NP	0.00	16.03	0.00	0.00	0.00
	24-Dec-2003	14.46	NP	0.00	17.80	0.00	0.00	0.00
	21-Jan-2004	13.79	NP	0.00	18.47	0.00	0.00	0.00
	25-Feb-2004	13.43	NP	0.00	18.83	0.00	0.00	0.00
	24-Mar-2004	15.33	NP	0.00	16.93	0.00	0.00	0.00
	14-Jan-2005	--	--	--	--	--	--	--
	21-Jan-2005	14.50	NP	0.00	17.41	0.00	0.00	0.00
	28-Jan-2005	14.46	NP	0.00	17.45	0.00	0.00	0.00
	25-Feb-2005	15.49	15.49	0.00	16.42	0.00	0.00	0.00
	25-Mar-2005	15.65	15.65	0.00	16.26	0.00	0.00	0.00
	30-Apr-2005	14.36	NP	0.00	17.55	0.00	0.00	0.00
	31-May-2005	14.15	NP	0.00	17.76	0.00	0.00	0.00
	24-Jun-2005	14.22	NP	0.00	17.69	0.00	0.00	0.00
	29-Jul-2005	14.39	NP	0.00	17.52	0.00	0.00	0.00
	26-Aug-2005	14.55	NP	0.00	17.36	0.00	0.00	0.00
	24-Sep-2005	14.70	NP	0.00	17.21	0.00	0.00	0.00
	21-Oct-2005	14.81	NP	0.00	17.10	0.00	0.00	0.00
	28-Nov-2005	14.39	NP	0.00	17.52	0.00	0.00	0.00
	3-Jan-2006	13.69	NP	0.00	18.22	0.00	0.00	0.00
	17-Feb-2006	13.07	NP	0.00	18.84	0.00	0.00	0.00
	13-Mar-2006	13.15	NP	0.00	18.76	0.00	0.00	0.00
	27-Jun-2006	13.82	NP	0.00	18.09	0.00	0.00	0.00
	19-Sep-2006	14.45	NP	0.00	17.46	0.00	0.00	0.00
	13-Dec-2006	13.74	NP	0.00	18.17	0.00	0.00	0.00
	29-Mar-2007	13.45	NP	0.00	18.46	0.00	0.00	0.00
	27-Jun-2007	14.14	NP	0.00	17.77	0.00	0.00	0.00
	18-Sep-2007	14.74	NP	0.00	17.17	0.00	0.00	0.00
	6-Dec-2007	14.07	NP	0.00	17.84	0.00	0.00	0.00
	10-Mar-2008	13.68	NP	0.00	18.23	0.00	0.00	0.00
	8-Sep-2008	14.67	NP	0.00	17.24	0.00	0.00	0.00
	29-Dec-2008	13.91	NP	0.00	18.00	0.00	0.00	0.00
	10-Mar-2009	14.18	NP	0.00	17.73	0.00	0.00	0.00
	4-Jun-2009	14.24	NP	0.00	17.67	0.00	0.00	0.00
<b>HC-23</b> (32.74)	13-Nov-2003	15.28	NP	0.00	17.46	0.00	0.00	0.00
	26-Nov-2003	14.88	NP	0.00	17.86	0.00	0.00	0.00
	24-Dec-2003	15.23	15.15	0.08	17.58	Trace	Trace	< 0.01
	30-Dec-2003	15.22	15.05	0.17	17.67	Trace	Trace	< 0.01
	9-Jan-2004	14.85	14.77	0.08	17.96	Trace	Trace	0.01
	15-Jan-2004	14.61	NP	0.00	18.13	0.00	Trace	0.00
	21-Jan-2004	14.42	14.41	0.01	18.33	Trace	Trace	0.01

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
HC-23 (continued)	3-Feb-2004	14.05	NP	0.00	18.69	0.00	Trace	0.00
	18-Feb-2004	14.05	NP	0.00	18.69	0.00	Trace	0.00
	25-Feb-2004	13.98	NP	0.00	18.76	0.00	Trace	0.00
	10-Mar-2004	14.15	NP	0.00	18.59	0.00	Trace	0.00
	24-Mar-2004	14.33	NP	0.00	18.41	0.00	Trace	0.00
	14-Jan-2005	—	—	—	—	—	--	—
	21-Jan-2005	15.35	15.30	0.05	17.43	Trace	Trace	0.00
	28-Jan-2005	15.28	15.27	0.01	17.47	0.00	0.00	0.00
	25-Feb-2005	15.31	15.30	0.01	17.44	0.00	0.00	0.00
	25-Mar-2005	15.48	15.45	0.03	17.29	0.00	0.00	0.03
	30-Apr-2005	15.18	NP	0.00	17.56	0.00	0.00	0.00
	31-May-2005	14.95	NP	0.00	17.79	0.00	0.00	0.00
	24-Jun-2005	15.01	14.96	0.05	17.77	0.00	0.00	0.05
	29-Jul-2005	16.25	16.25	0.00	16.49	0.00	0.00	0.00
	26-Aug-2005	15.51	15.30	0.21	17.42	0.50	0.50	0.05
	9-Sep-2005	15.49	15.40	0.09	17.33	0.00	0.50	0.09
	24-Sep-2005	15.64	15.47	0.17	17.25	0.05	0.55	0.05
	10-Oct-2005	15.55	15.52	0.03	17.22	0.00	0.55	0.03
	21-Oct-2005	15.47	15.45	0.02	17.29	0.00	0.55	0.02
	28-Nov-2005	15.27	15.27	0.00	17.47	0.00	0.55	< 0.01
	3-Jan-2006	14.75	NP	0.00	17.99	0.00	0.55	0.00
	17-Feb-2006	13.73	NP	0.00	19.01	0.00	0.55	0.00
	13-Mar-2006	13.91	NP	0.00	18.83	0.00	0.55	0.00
	19-Sep-2006	15.25	15.23	0.02	17.51	0.00	0.55	0.02
	13-Dec-2006	14.68	14.65	0.03	18.09	0.00	0.55	0.03
	29-Mar-2007	14.20	14.19	0.01	18.55	0.00	0.55	0.01
	27-Jun-2007	14.93	14.91	0.02	17.83	0.00	0.55	0.02
	18-Sep-2007	15.59	15.56	0.03	17.16	0.00	0.55	0.03
(32.74)	6-Dec-2007	15.51	NP	0.00	17.23	0.00	0.55	0.03
	10-Mar-2008	14.37	NP	0.00	18.37	0.00	0.55	0.00
	12-Jun-2008	14.65	NP	0.00	18.09	0.00	0.55	0.00
	8-Sep-2008	15.50	NP	0.00	17.24	0.00	0.55	0.00
	29-Dec-2008	15.50	NP	0.00	17.24	0.00	0.55	0.00
	10-Mar-2009	15.04	NP	0.00	17.70	0.00	0.55	0.00
	4-Jun-2009	15.04	NP	0.00	17.70	0.00	0.55	0.00
	9-Sep-2009	15.81	NP	0.00	16.93	0.00	0.55	0.00
	15-Dec-2009	15.12	NP	0.00	17.62	0.00	0.55	0.00
	11-Mar-2010	14.55	NP	0.00	18.19	0.00	0.55	0.00
	8-Jun-2010	14.48	NP	0.00	18.26	0.00	0.55	0.00
	16-Sep-2010	15.11	NP	0.00	17.63	0.00	0.55	0.00
	13-Dec-2010	14.60	NP	0.00	18.14	0.00	0.55	0.00
	9-Jun-2011	13.60	SHEEN	0.00	19.14	0.00	0.55	0.00
	1-Dec-2011	14.93	NP	0.00	17.81	0.00	0.55	0.00
HC-24 (30.04)	11-Jun-2012	14.00	NP	0.00	18.74	0.00	0.55	0.00
	13-Nov-2003	15.08	NP	0.00	14.96	0.00	0.00	0.00
	26-Nov-2003	14.68	NP	0.00	15.36	0.00	0.00	0.00
	24-Dec-2003	13.82	NP	0.00	16.22	0.00	0.00	0.00
	21-Jan-2004	13.13	NP	0.00	16.91	0.00	0.00	0.00
	25-Feb-2004	12.35	NP	0.00	17.69	0.00	0.00	0.00
	24-Mar-2004	12.61	NP	0.00	17.43	0.00	0.00	0.00
	14-Jan-2005	14.90	NP	0.00	15.14	0.00	0.00	0.00
	28-Jan-2005	15.79	NP	0.00	14.25	0.00	0.00	0.00
	25-Feb-2005	14.80	14.80	0.00	15.24	0.00	0.00	0.00
	25-Mar-2005	15.07	15.07	0.00	14.97	0.00	0.00	0.00
	30-Apr-2005	14.62	NP	0.00	15.42	0.00	0.00	0.00
	31-May-2005	17.34	NP	0.00	12.70	0.00	0.00	0.00
	24-Jun-2005	14.30	NP	0.00	15.74	0.00	0.00	0.00
	29-Jul-2005	14.60	NP	0.00	15.44	0.00	0.00	0.00
	26-Aug-2005	14.92	NP	0.00	15.12	0.00	0.00	0.00
	24-Sep-2005	15.18	NP	0.00	14.86	0.00	0.00	0.00
	21-Oct-2005	15.33	NP	0.00	14.71	0.00	0.00	0.00
	28-Nov-2005	14.55	NP	0.00	15.49	0.00	0.00	0.00
	3-Jan-2006	13.53	NP	0.00	16.51	0.00	0.00	0.00
	17-Feb-2006	12.23	NP	0.00	17.81	0.00	0.00	0.00
	13-Mar-2006	12.38	NP	0.00	17.66	0.00	0.00	0.00
	27-Jun-2006	13.31	NP	0.00	16.73	0.00	0.00	0.00
	19-Sep-2006	14.64	NP	0.00	15.40	0.00	0.00	0.00
	13-Dec-2006	12.84	NP	0.00	17.20	0.00	0.00	0.00
	29-Mar-2007	12.30	NP	0.00	17.74	0.00	0.00	0.00
	27-Jun-2007	13.74	13.73	0.01	16.31	0.00	0.00	0.01
	18-Sep-2007	14.99	NP	0.00	15.05	0.00	0.00	0.00
	6-Dec-2007	13.13	NP	0.00	16.91	0.00	0.00	0.00
	10-Mar-2008	12.72	NP	0.00	17.32	0.00	0.00	0.00
	12-Jun-2008	13.22	NP	0.00	16.82	0.00	0.00	0.00
	8-Sep-2008	14.68	NP	0.00	15.36	0.00	0.00	0.00
	29-Dec-2008	13.05	NP	0.00	16.99	0.00	0.00	0.00
	10-Mar-2009	13.92	NP	0.00	16.12	0.00	0.00	0.00
	4-Jun-2009	13.89	NP	0.00	16.15	0.00	0.00	0.00
	9-Sep-2009	15.01	NP	0.00	15.03	0.00	0.00	0.00
	15-Dec-2009	14.09	NP	0.00	15.95	0.00	0.00	0.00
	11-Mar-2010	12.65	NP	0.00	17.39	0.00	0.00	0.00
	8-Jun-2010	12.57	NP	0.00	17.47	0.00	0.00	0.00
	16-Sep-2010	15.05	SHEEN	0.00	14.99	0.00	0.00	0.00
	13-Dec-2010	12.31	SHEEN	0.00	17.73	0.00	0.00	0.00
	9-Jun-2011	11.84	NP	0.00	18.20	0.00	0.00	0.00
	1-Dec-2011	13.29	NP	0.00	16.75	0.00	0.00	0.00
	11-Jun-2012	12.22	NP	0.00	17.82	0.00	0.00	0.00

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>EX-1</b> (33.08)	27-Aug-2003	15.78	NP	0.00	14.26	0.00	0.00	0.00
	3-Sep-2003	15.88	NP	0.00	14.16	0.00	0.00	0.00
	11-Sep-2003	16.06	NP	0.00	13.98	0.00	0.00	0.00
	17-Sep-2003	16.21	NP	0.00	13.83	0.00	0.00	0.00
	30-Sep-2003	16.22	NP	0.00	13.82	0.00	0.00	0.00
	14-Oct-2003	16.25	NP	0.00	13.79	0.00	0.00	0.00
	29-Oct-2003	16.38	NP	0.00	13.66	0.00	0.00	0.00
	13-Nov-2003	16.45	NP	0.00	13.59	0.00	0.00	0.00
	26-Nov-2003	16.07	NP	0.00	13.97	0.00	0.00	0.00
	24-Dec-2003	15.46	NP	0.00	14.58	0.00	0.00	0.00
	21-Jan-2004	15.06	NP	0.00	14.98	0.00	0.00	0.00
	25-Feb-2004	14.53	NP	0.00	15.51	0.00	0.00	0.00
	24-Mar-2004	14.84	NP	0.00	15.20	0.00	0.00	0.00
	28-Jan-2005	15.79	NP	0.00	14.25	0.00	0.00	0.00
	25-Feb-2005	14.80	14.80	0.00	15.24	0.00	0.00	0.00
	25-Mar-2005	15.07	15.07	0.00	14.97	0.00	0.00	0.00
	30-Apr-2005	14.62	NP	0.00	15.42	0.00	0.00	0.00
	31-May-2005	17.34	NP	0.00	12.70	0.00	0.00	0.00
	24-Jun-2005	14.30	NP	0.00	15.74	0.00	0.00	0.00
	29-Jul-2005	14.60	NP	0.00	15.44	0.00	0.00	0.00
	26-Aug-2005	14.92	NP	0.00	15.12	0.00	0.00	0.00
	24-Sep-2005	15.18	NP	0.00	14.86	0.00	0.00	0.00
	21-Oct-2005	15.33	NP	0.00	14.71	0.00	0.00	0.00
	28-Nov-2005	14.55	NP	0.00	15.49	0.00	0.00	0.00
	3-Jan-2006	13.53	NP	0.00	16.51	0.00	0.00	0.00
	17-Feb-2006	12.23	NP	0.00	17.81	0.00	0.00	0.00
(30.04)	13-Mar-2006	12.38	NP	0.00	17.66	0.00	0.00	0.00
	27-Jun-2006	13.31	NP	0.00	16.73	0.00	0.00	0.00
	19-Sep-2006	14.64	NP	0.00	15.40	0.00	0.00	0.00
	13-Dec-2006	12.84	NP	0.00	17.20	0.00	0.00	0.00
	29-Mar-2007	12.30	NP	0.00	17.74	0.0	0.0	0.00
	27-Jun-2007	13.74	13.73	0.01	16.31	0.0	0.0	0.01
	18-Sep-2007	14.99	NP	0.00	15.05	0.0	0.0	0.00
	6-Dec-2007	13.13	NP	0.00	16.91	0.0	0.0	0.00
	10-Mar-2008	12.72	NP	0.00	17.32	0.0	0.0	0.00
	12-Jun-2008	13.22	NP	0.00	16.82	0.0	0.0	0.00
	8-Sep-2008	14.68	NP	0.00	15.36	0.0	0.0	0.00
	29-Dec-2008	13.05	NP	0.00	16.99	0.0	0.0	0.00
<b>BE-1</b>	10-Mar-2009	--	--	--	--	--	--	--
	24-Jun-2009	--	--	--	--	--	--	--
(19.75)	24-Jun-2005	10.01	NP	0.00	9.74	0.00	0.00	0.00
	29-Jul-2005	10.23	NP	0.00	9.52	0.00	0.00	0.00
	26-Aug-2005	10.27	NP	0.00	9.48	0.00	0.00	0.00
	24-Sep-2005	10.22	NP	0.00	9.53	0.00	0.00	0.00
	21-Oct-2005	10.10	NP	0.00	9.65	0.00	0.00	0.00
	28-Nov-2005	9.91	NP	0.00	9.84	0.00	0.00	0.00
	3-Jan-2006	--	--	--	--	--	--	--
	17-Feb-2006	9.61	NP	0.00	10.14	0.00	0.00	0.00
	13-Mar-2006	9.55	NP	0.00	10.20	0.00	0.00	0.00
	27-Jun-2006	9.66	NP	0.00	10.09	0.00	0.00	0.00
	19-Sep-2006	10.10	NP	0.00	9.65	0.00	0.00	0.00
	13-Dec-2006	6.57	NP	0.00	13.18	0.00	0.00	0.00
	29-Mar-2007	6.23	NP	0.00	13.52	0.00	0.00	0.00
	27-Jun-2007	6.76	NP	0.00	12.99	0.00	0.00	0.00
	18-Sep-2007	7.79	NP	0.00	11.96	0.00	0.00	0.00
	6-Dec-2007	6.38	NP	0.00	13.37	0.00	0.00	0.00
	10-Mar-2008	6.49	NP	0.00	13.26	0.00	0.00	0.00
	12-Jun-2008	3.90	NP	0.00	15.85	0.00	0.00	0.00
	8-Sep-2008	7.08	NP	0.00	12.67	0.00	0.00	0.00
	29-Dec-2008	6.51	NP	0.00	13.24	0.00	0.00	0.00
<b>BE-2</b>	10-Mar-2009	6.89	NP	0.00	12.86	0.00	0.00	0.00
	4-Jun-2009	5.63	NP	0.00	14.12	0.00	0.00	0.00
	9-Sep-2009	7.25	NP	0.00	12.50	0.00	0.00	0.00
	15-Dec-2009	7.01	NP	0.00	12.74	0.00	0.00	0.00
	11-Mar-2010	6.72	NP	0.00	13.03	0.00	0.00	0.00
	8-Jun-2010	2.40	NP	0.00	17.35	0.00	0.00	0.00
	16-Sep-2010	6.86	NP	0.00	12.89	0.00	0.00	0.00
	13-Dec-2010	6.15	NP	0.00	13.60	0.00	0.00	0.00
	12-Jun-2012	5.30	NP	0.00	14.45	0.00	0.00	0.00

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>BE-2</b> <i>(continued)</i>  (19.69)	19-Sep-2006	8.79	NP	0.00	10.90	0.00	0.00	0.00
	13-Dec-2006	8.57	NP	0.00	11.12	0.00	0.00	0.00
	29-Mar-2007	8.07	NP	0.00	11.62	0.00	0.00	0.00
	27-Jun-2007	8.55	NP	0.00	11.14	0.00	0.00	0.00
	18-Sep-2007	8.90	NP	0.00	10.79	0.00	0.00	0.00
	6-Dec-2007	7.89	NP	0.00	11.80	0.00	0.00	0.00
	10-Mar-2008	8.21	NP	0.00	11.48	0.00	0.00	0.00
	12-Jun-2008	5.73	NP	0.00	13.96	0.00	0.00	0.00
	8-Sep-2008	8.98	NP	0.00	10.71	0.00	0.00	0.00
	29-Dec-2008	Well Destroyed						
<b>BE-3</b>  (17.55)	24-Jun-2005	6.42	NP	0.00	11.13	0.00	0.00	0.00
	29-Jul-2005	6.66	NP	0.00	10.89	0.00	0.00	0.00
	26-Aug-2005	6.79	NP	0.00	10.76	0.00	0.00	0.00
	24-Sep-2005	6.80	NP	0.00	10.75	0.00	0.00	0.00
	21-Oct-2005	6.75	NP	0.00	10.80	0.00	0.00	0.00
	28-Nov-2005	6.58	NP	0.00	10.97	0.00	0.00	0.00
	3-Jan-2006	--	--	--	--	--	--	--
	17-Feb-2006	6.64	NP	0.00	10.91	0.00	0.00	0.00
	13-Mar-2006	6.47	NP	0.00	11.08	0.00	0.00	0.00
	27-Jun-2006	6.31	NP	0.00	11.24	0.00	0.00	0.00
	19-Sep-2006	6.83	NP	0.00	10.72	0.00	0.00	0.00
	13-Dec-2006	9.47	NP	0.00	8.08	0.00	0.00	0.00
	29-Mar-2007	9.44	NP	0.00	8.11	0.00	0.00	0.00
	27-Jun-2007	9.99	NP	0.00	7.56	0.00	0.00	0.00
	18-Sep-2007	10.13	NP	0.00	7.42	0.00	0.00	0.00
	6-Dec-2007	8.79	NP	0.00	8.76	0.00	0.00	0.00
	10-Mar-2008	10.41	NP	0.00	7.14	0.00	0.00	0.00
	12-Jun-2008	5.97	NP	0.00	11.58	0.00	0.00	0.00
	8-Sep-2008	10.18	NP	0.00	7.37	0.00	0.00	0.00
	29-Dec-2008	9.59	NP	0.00	7.96	0.00	0.00	0.00
	10-Mar-2009	9.85	NP	0.00	7.70	0.00	0.00	0.00
	4-Jun-2009	8.13	NP	0.00	9.42	0.00	0.00	0.00
	9-Sep-2009	10.36	NP	0.00	7.19	0.00	0.00	0.00
	15-Dec-2009	9.88	NP	0.00	7.67	0.00	0.00	0.00
	11-Mar-2010	9.65	NP	0.00	7.90	0.00	0.00	0.00
	8-Jun-2010	4.60	NP	0.00	12.95	0.00	0.00	0.00
	16-Sep-2010	9.81	NP	0.00	7.74	0.00	0.00	0.00
	13-Dec-2010	8.67	NP	0.00	8.88	0.00	0.00	0.00
	9-Jun-2011	1.89	NP	0.00	15.66	0.00	0.00	0.00
	1-Dec-2011	9.63	NP	0.00	7.92	0.00	0.00	0.00
	11-Jun-2012	7.16	NP	0.00	10.39	0.00	0.00	0.00
<b>BE-4</b>  (31.16)	24-Jun-2005	18.81	NP	0.00	12.35	0.00	0.00	0.00
	29-Jul-2005	19.14	NP	0.00	12.02	0.00	0.00	0.00
	26-Aug-2005	19.07	NP	0.00	12.09	0.00	0.00	0.00
	24-Sep-2005	18.75	NP	0.00	12.41	0.00	0.00	0.00
	21-Oct-2005	18.29	NP	0.00	12.87	0.00	0.00	0.00
	28-Nov-2005	17.39	0.00		13.77	0.00	0.00	0.00
	3-Jan-2006	14.72	14.69	0.03	16.47	0.00	0.00	0.03
	17-Feb-2006	14.88	14.82	0.06	16.33	0.00	0.00	0.06
	13-Mar-2006	15.55	15.51	0.04	15.65	0.00	0.00	0.04
	27-Jun-2006	16.03	15.95	0.08	15.20	0.00	0.00	0.08
	19-Sep-2006	17.01	16.79	0.22	14.35	0.75	0.75	0.02
	13-Dec-2006	15.67	15.66	0.01	15.50	0.00	0.75	0.02
	29-Mar-2007	15.25	15.18	0.07	15.97	0.00	0.75	0.07
	27-Jun-2007	16.51	16.31	0.20	14.83	1.00	1.75	0.01
	9-Aug-2007	16.85	16.47	0.38	14.65	0.50	2.25	0.01
	22-Aug-2007	16.82	16.58	0.24	14.55	1.00	3.25	0.01
	7-Sep-2007	17.62	16.76	0.86	14.31	1.50	4.75	0.01
	14-Sep-2007	18.16	18.06	0.10	13.09	0.25	5.00	0.00
	4-Oct-2007	16.81	16.71	0.10	14.44	0.40	5.40	0.00
	11-Oct-2007	16.74	16.66	0.08	14.49	0.00	5.40	0.08
	24-Oct-2007	16.62	16.54	0.08	14.61	0.00	5.40	0.08
	8-Nov-2007	16.78	16.71	0.07	14.44	0.00	5.40	0.07
	21-Nov-2007	16.68	16.60	0.08	14.55	0.00	5.40	0.08
	7-Dec-2007	14.16	14.13	0.03	17.03	0.00	5.40	0.03
	21-Dec-2007	15.76	15.75	0.01	15.41	0.00	5.40	0.01
	3-Jan-2008	14.64	14.63	0.01	16.53	0.00	5.40	0.01
	18-Jan-2008	14.32	14.31	0.01	16.85	0.00	5.40	0.01
	24-Jan-2008	14.98	14.95	0.03	16.21	0.00	5.40	0.03
	31-Jan-2008	15.31	15.28	0.03	15.88	0.00	5.40	0.03
	6-Feb-2008	14.17	14.16	0.01	17.00	0.00	5.40	0.03
	15-Feb-2008	14.18	SHEEN	0.00	16.98	0.00	5.40	SHEEN
	29-Feb-2008	15.35	SHEEN	0.00	15.81	0.00	5.40	SHEEN
	10-Mar-2008	16.61	SHEEN	0.00	14.55	0.00	5.40	SHEEN
	21-Mar-2008	15.63	SHEEN	0.00	15.53	0.00	5.40	SHEEN
	11-Apr-2008	15.69	15.67	0.02	15.49	0.00	5.40	SHEEN
	17-Apr-2008	15.76	15.71	0.05	15.44	0.00	5.40	SHEEN
	24-Apr-2008	15.72	15.67	0.05	15.48	0.05	5.45	SHEEN
	2-May-2008	15.73	15.66	0.07	15.49	0.00	5.45	SHEEN
	8-May-2008	16.02	15.78	0.24	15.35	0.10	5.55	0.01
	14-May-2008	16.00	15.93	0.07	15.22	0.00	5.55	0.07
	30-May-2008	15.22	15.18	0.04	15.98	0.00	5.55	0.04
	13-Jun-2008	15.30	15.26	0.04	15.90	0.00	5.55	0.04

Please refer to notes at end of table.

TABLE 1  
GROUNDWATER AND PRODUCT LEVEL MONITORING  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Well ID [Casing Elevation]	Date	Initial Measurements [feet]				Product Removal [gallons]		Final Product Thickness [feet]
		Depth to Water	Depth to Product	Product Thickness	Groundwater Elevation *	Discrete Event	Cumulative	
<b>BE-4</b> <i>(continued)</i>	25-Jun-2008	15.78	15.76	0.02	15.40	0.00	5.55	0.02
	11-Jul-2008	16.34	16.08	0.26	15.05	0.05	5.60	0.01
	28-Jul-2008	16.65	16.35	0.30	14.78	0.07	5.67	SHEEN
	13-Aug-2008	16.92	16.60	0.32	14.52	0.13	5.80	0.01
	27-Aug-2008	16.98	16.73	0.25	14.40	0.53	6.33	0.01
	8-Sep-2008	17.12	16.82	0.30	14.31	0.53	6.86	0.02
	18-Sep-2008	17.16	16.92	0.24	14.21	0.66	7.52	SHEEN
	30-Sep-2008	17.28	17.05	0.23	14.08	0.05	7.57	0.01
	16-Oct-2008	17.40	17.18	0.22	13.96	0.10	7.67	0.01
	30-Oct-2008	17.42	17.25	0.17	13.89	0.20	7.87	SHEEN
	14-Nov-2008	16.92	16.91	0.01	14.25	0.00	7.87	0.01
	26-Nov-2008	16.98	16.94	0.04	14.22	0.00	7.87	0.04
	29-Dec-2008	16.54	16.52	0.02	14.64	0.00	7.87	0.02
	15-Jan-2009	15.39	15.37	0.02	15.79	0.00	7.87	0.02
	23-Jan-2009	15.93	15.92	0.01	15.24	0.00	7.87	0.01
	29-Jan-2009	16.11	16.10	0.01	15.06	0.00	7.87	0.01
	4-Feb-2009	16.18	16.17	0.01	14.99	0.00	7.87	0.01
	12-Feb-2009	16.40	16.34	0.06	14.81	0.00	7.87	0.06
	19-Feb-2009	12.58	12.56	0.02	18.60	0.00	7.87	0.02
	10-Mar-2009	16.60	16.54	0.06	14.61	0.00	7.87	0.06
	27-Mar-2009	16.63	16.49	0.14	14.65	0.05	7.92	0.02
	16-Apr-2009	16.67	16.59	0.08	14.56	0.00	7.92	0.08
	14-May-2009	16.76	16.53	0.23	14.60	0.05	7.97	SHEEN
	4-Jun-2009	16.35	16.27	0.08	14.88	0.00	7.97	0.08
	13-Jul-2009	17.15	17.06	0.09	14.09	0.00	7.97	0.09
	10-Aug-2009	17.43	17.09	0.34	14.03	0.01	7.98	0.01
	9-Sep-2009	17.29	17.26	0.03	13.90	0.03	8.01	0.03
	15-Oct-2009	17.93	17.39	0.54	13.71	0.03	8.04	SHEEN
	18-Nov-2009	16.92	16.72	0.20	14.42	0.05	8.09	SHEEN
	15-Dec-2009	16.62	16.45	0.17	14.69	0.02	8.11	0.01
	13-Jan-2010	15.64	15.56	0.08	15.59	0.00	8.11	0.08
	2-Mar-2010	15.74	15.66	0.08	15.49	0.00	8.11	0.08
	11-Mar-2010	15.78	15.70	0.08	15.45	0.00	8.11	0.08
	25-Mar-2010	15.95	15.80	0.15	15.34	0.10	8.21	0.01
	2-Apr-2010	15.65	15.65	SHEEN	15.65	0.00	8.21	SHEEN
	9-Apr-2010	15.62	15.41	0.21	15.73	0.25	8.46	0.08
	16-Apr-2010	15.67	15.45	0.22	15.69	0.25	8.71	0.01
	23-Apr-2010	15.70	15.62	0.08	15.53	0.00	8.71	0.08
	8-Jun-2010	13.61	13.59	0.02	17.57	0.00	8.71	0.02
	9-Jul-2010	14.63	14.61	0.02	16.55	0.00	8.71	0.02
	23-Jul-2010	15.90	15.89	0.01	15.27	0.00	8.71	0.01
	6-Aug-2010	16.29	16.00	0.29	15.13	0.25	8.96	0.05
	19-Aug-2010	16.37	16.31	0.06	14.84	0.00	8.96	0.05
	27-Aug-2010	16.41	16.19	0.22	14.95	0.50	9.46	0.04
	17-Sep-2010	16.55	16.33	0.22	14.81	0.25	9.71	0.05
	8-Oct-2010	16.44	16.42	0.02	14.74	0.00	9.71	0.02
	11-Nov-2010	16.94	16.81	0.13	14.34	0.05	9.76	0.01
	15-Dec-2010	14.22	14.06	0.16	17.08	0.25	10.01	0.02
	21-Dec-2010	14.15	13.95	0.20	17.19	0.20	10.21	0.02
	30-Dec-2010	13.68	13.25	0.43	17.86	0.50	10.71	0.01
	6-Jan-2011	13.67	13.64	0.03	17.52	0.00	10.71	0.03
	13-Jan-2011	13.92	13.89	0.03	17.27	0.00	10.71	0.03
	19-Jan-2011	13.87	13.83	0.04	17.33	0.00	10.71	0.04
	28-Jan-2011	14.13	14.11	0.02	17.05	0.00	10.71	0.02
	9-Feb-2011	15.03	15.01	0.02	16.15	0.00	10.71	0.02
	23-Feb-2011	15.18	15.17	0.01	15.99	0.00	10.71	0.01
	9-Mar-2011	15.38	15.34	0.04	15.82	0.00	10.71	0.04
	29-Mar-2011	14.00	13.96	0.04	17.20	0.00	10.71	0.04
	21-Apr-2011	13.93	13.90	0.03	17.26	0.00	10.71	0.03
	6-May-2011	14.14	14.10	0.04	17.06	0.00	10.71	0.04
	9-Jun-2011	13.02	13.01	0.01	18.15	0.00	10.71	0.01
	7-Jul-2011	14.17	13.89	0.28	17.24	0.25	10.96	SHEEN
	3-Aug-2011	15.31	15.29	0.02	15.87	0.00	10.96	0.02
	8-Sep-2011	15.86	15.79	0.07	15.36	0.00	10.96	0.07
	3-Oct-2011	16.18	16.03	0.15	15.11	0.20	11.16	0.01
	10-Nov-2011	16.50	16.37	0.13	14.78	0.20	11.36	SHEEN
	1-Dec-2011	17.96	17.88	0.08	13.27	0.00	11.36	0.08
	6-Jan-2012	16.13	16.09	0.04	15.07	0.00	11.36	0.04
	25-Jan-2012	15.84	15.80	0.04	15.36	0.00	11.36	0.04
	3-Mar-2012	15.63	15.58	0.05	15.57	0.00	11.36	0.05
	14-Mar-2012	15.27	15.25	0.02	15.91	0.00	11.36	0.02
	22-Mar-2012	14.40	14.38	0.02	16.78	0.00	11.36	0.02
	29-Mar-2012	14.34	14.31	0.03	16.85	0.00	11.36	0.03
	5-Apr-2012	13.73	13.72	0.01	17.44	0.00	11.36	0.01
	13-Apr-2012	14.35	14.30	0.05	16.85	0.00	11.36	0.05
	23-Apr-2012	14.37	14.32	0.05	16.83	0.00	11.36	0.05
	14-May-2012	14.38	14.35	0.03	16.81	0.00	11.36	0.03
	25-May-2012	--	--	--	--	--	--	--
	12-Jun-2012	14.75	14.73	0.02	16.43	0.00	11.36	0.02
<b>BE-5</b> <i>(21.12)</i>	9-Sep-2009	11.08	NP	0.00	10.04	0.00	0.00	0.00
	15-Dec-2009	10.87	NP	0.00	10.25	0.00	0.00	0.00
	11-Mar-2010	10.61	NP	0.00	10.51	0.00	0.00	0.00
	8-Jun-2010	6.04	NP	0.00	15.08	0.00	0.00	0.00
	16-Sep-2010	10.87	NP	0.00	10.25	0.00	0.00	0.00
	13-Dec-2010	9.52	NP	0.00	11.60	0.00	0.00	0.00
	9-Jun-2011	3.29	NP	0.00	17.83	0.00	0.00	0.00
	1-Dec-2011	10.83	NP	0.00	10.29	0.00	0.00	0.00
	11-Jun-2012	8.33	NP	0.00	12.79	0.00	0.00	0.00

**Notes:**

- The LNAPL monitoring program was reduced in March 2006 to include only wells MW-19 and MW-20, approved by the DEQ in an April 6, 2006 letter.
- Passive product skimmers were installed in wells MW-19 and MW-20 in June 2006; water level measurements were discontinued.
- NP = No Product at the time of the monitoring event.
- \* Phreatic Elevation = (Casing Elevation - Depth to Water) + S<sub>g</sub> \* (Product Thickness). S<sub>g</sub> = 0.89
- Sheen observed in Slip, but away from bank.
- = Not measured or not applicable.
- Shading denotes data from the first semi-annual 2012.

TABLE 2  
2012 LNAPL RECOVERY  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Wells	MW-15	MW-17	MW-19	MW-20	HC-10	BE-4	
Date	LNAPL Removed (gallons)						Total
<b>2005 Total</b>	Data for individual wells not shown						<b>24</b>
<b>2006 Total</b>	Data for individual wells not shown						<b>61</b>
<b>2007 Total</b>	Data for individual wells not shown						<b>100</b>
<b>2008 Total</b>	Data for individual wells not shown						<b>71</b>
1Q09 Total	0.00	1.98	2.77	2.48	0.00	0.05	7.28
2Q09 Total	0.00	0.07	0.03	0.05	0.08	0.05	0.28
3Q09 Total	1.95	0.13	0.04	0.00	0.07	0.04	2.23
4Q09 Total	0.64	0.16	0.00	0.00	0.00	0.10	0.90
<b>2009 Total</b>	<b>2.59</b>	<b>2.34</b>	<b>2.84</b>	<b>2.53</b>	<b>0.15</b>	<b>0.24</b>	<b>10.69</b>
1Q10 Total	1.53	6.93	27.35	13.50	0.25	0.10	49.66
2Q10 Total	0.50	2.90	12.75	10.75	0.63	0.50	55.53
3Q10 Total	1.00	2.75	10.75	6.80	1.00	1.00	23.30
4Q10 Total	1.50	2.90	10.95	10.35	0.50	1.00	27.20
<b>2010 Total</b>	<b>4.53</b>	<b>15.48</b>	<b>61.80</b>	<b>41.40</b>	<b>2.38</b>	<b>2.60</b>	<b>155.69</b>
1SA11 Total	0.05	9.35	12.35	11.45	2.25	0.00	41.84
2SA11 Total	0.25	1.20	0.70	5.05	1.00	0.65	8.85
<b>2011 Total</b>	<b>0.30</b>	<b>10.55</b>	<b>13.05</b>	<b>16.50</b>	<b>3.25</b>	<b>0.65</b>	<b>50.69</b>
1/6/2012	0.00	0.00	--	0.25	0.00	0.00	0.25
1/25/2012	0.00	0.30	--	0.10	0.00	0.00	0.40
3/3/2012	0.00	1.00	--	4.00	0.20	0.00	5.20
3/5/2012	--	--	3.00	1.50	--	--	4.50
3/14/2012	--	0.75	--	2.55	0.15	0.00	3.45
3/22/2012	0.00	0.50	1.00	1.50	0.12	0.00	3.12
3/29/2012	--	0.50	--	2.00	0.00	0.00	2.50
4/5/2012	0.13	0.25	0.88	0.50	0.13	0.00	1.88
4/13/2012	0.00	--	0.10	0.55	0.00	0.00	0.65
4/23/2012	0.00	0.50	0.13	2.30	0.25	0.00	3.18
5/14/2012	0.25	0.50	0.05	0.79	0.20	0.00	1.79
5/25/2012	0.00	0.00	0.00	1.75	0.00	--	1.75
6/12/2012	0.00	0.75	0.00	1.25	0.10	0.00	2.10
1SA12 Total	0.38	5.05	5.16	19.04	1.15	0.00	30.77
<b>2012 Total</b>	<b>0.38</b>	<b>5.05</b>	<b>5.16</b>	<b>19.04</b>	<b>1.15</b>	<b>0.00</b>	<b>30.77</b>

**Notes:**

- As per the April 6, 2006 letter, the current LNAPL recovery program includes wells MW-19 and MW-20. If during quarterly monitoring, LNAPL returns to other wells at a thickness that is practical for recovery (greater than 0.1 foot), the LNAPL is removed.
- = Unable to monitor or product thickness is only monitored during quarterly events.

TABLE 3  
GROUNDWATER ELEVATIONS  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Monitoring Well	Top of Casing Elevation [feet]	Sample Date	Depth to LNAPL [feet]	Depth to Water [feet]	Product Thickness [feet]	Groundwater Elevation [feet MSL] <sup>1</sup>
MW-8	31.13	6/11/2012	--	15.62	--	15.51
MW-14	31.32	6/11/2012	--	16.48	--	14.84
MW-15	31.57	6/11/2012	15.10	15.11	0.01	16.47
MW-17	28.40	6/11/2012	13.37	14.08	0.71	14.95
MW-19	30.73	6/11/2012	--	14.30	--	16.43
MW-20	30.73	6/11/2012	15.53	16.12	0.59	15.14
HC-5	32.10	6/11/2012	--	18.17	--	13.93
HC-10	29.30	6/11/2012	14.61	14.86	0.25	14.66
HC-19	33.05	6/11/2012	--	16.30	--	16.75
HC-21	31.95	6/11/2012	--	15.05	--	16.90
HC-23	32.74	6/11/2012	--	14.00	--	18.74
HC-24	30.04	6/11/2012	--	12.22	--	17.82
BE-1	19.75	6/12/2012	--	5.30	--	14.45
BE-2	19.69	6/11/2012				Well Destroyed
BE-3	17.55	6/11/2012	--	7.16	--	10.39
BE-4	31.16	6/11/2012	14.73	14.75	0.02	16.43
BE-5	21.12	6/11/2012	--	8.33	--	12.79

**Notes:**

1. MSL = Mean Sea Level.
2. NA = Not Available (well not accessible).
3. NS = Not Surveyed.
4. -- = Not applicable or not measured.
5. Skimmers were installed in wells MW-19 and MW-20 in June 2006.  
Measured depths to water do not reflect actual groundwater elevations.

TABLE 4  
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

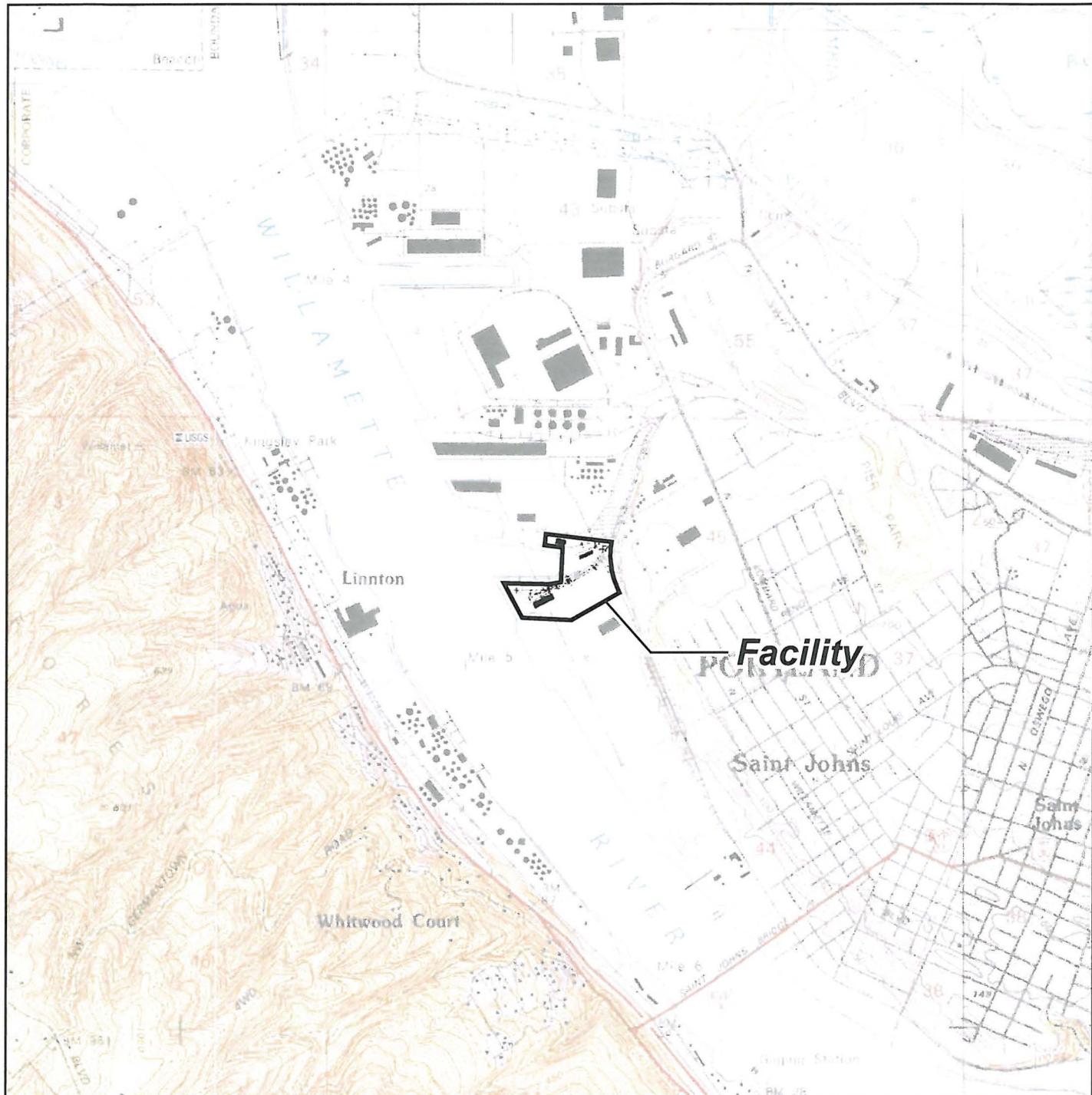
Sample Point	Sample Date	Analyte Concentration in µg/L (ppb)																		
		Total Petroleum Hydrocarbons		Polynuclear Aromatic Hydrocarbons (PAHs)																
		Diesel-Range	Residual-Range	Acenaphthene	Acenaphthylene	Anthracene	BAA	BAP	BBF	BGP	BKF	Chrysene	DAA	Fluoranthene	Fluorene	ICP	Naphthalene	Phenanthrene	Pyrene	
<b>South Slip 3 Area</b>																				
HC-2	11/5/1998	--	--	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
	5/10/2004	<250	< 500	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
	2/11/2005	120 J	310 J	< 0.021	--	0.0053	< 0.021	--	--	--	--	--	0.0084	< 0.021	--	0.14	0.0069	--	--	--
	6/2/2005	20 J	< 500	0.0058 J	0.0055 J	0.027	0.0043 J	0.0044 J	0.0056 J	0.0046 J	0.0042 J	0.0049 J	< 0.020	0.0086 J	0.0094 J	0.0052 J	0.026	0.017 J	0.0075 J	
	9/15/2005	<238	< 476	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	< 0.196	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	< 0.098	
	12/9/2005	<236	< 472	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	
	6/28/2006	<240	< 481	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.189	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.0943	< 0.0943	
	6/27/2007	<238	< 476	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	
	6/12/2008	<236	< 472	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	
	6/4/2009	<238	< 476	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	
HC-5	11/12/1998	--	--	< 2.5	< 2.5	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.5	< 0.1	< 0.1	
	5/10/2004	990,000	< 50,000	< 25	< 25	27.6	0.742	< 0.5	< 0.5	< 0.5	< 0.5	1.65	< 1.0	< 25	86.1	< 0.5	< 37.5	43.0	14.9	
	6/10/2004	102,000	< 5,000	11.4	< 10	< 10	0.422	< 0.25	< 0.25	< 0.25	< 0.25	0.815	< 0.25	< 10	35.3	< 0.25	16.8	17.4	4.68	
	2/11/2005	26,000 J	4,800 J	0.65	--	< 0.02	< 0.02	--	--	--	--	0.07	2.9	--	< 0.19	0.28	--	--	--	
	6/2/2005	3,200 Y	< 500	0.26	< 0.064	< 0.37	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.096	2.7	< 0.020	< 0.17	< 0.21	< 0.020	--	
	9/15/2005	1,510 J	< 476	0.973	< 0.476	< 0.476	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	4.21	< 0.0952	< 0.952	< 0.476	< 0.143	< 0.143	
	12/7/2005	1,940	< 485	< 0.143	< 0.0952	< 0.238	< 0.0952	< 0.476	< 0.476	< 0.476	< 0.476	< 0.952	< 0.952	1.15	< 0.476	< 0.143	< 0.143	< 0.238	< 0.190	
	6/28/2006	2,990	< 476	< 0.190	< 0.190	< 0.190	< 0.190	< 0.190	< 0.190	< 0.190	< 0.190	< 0.190	< 0.381	< 0.190	1.10	< 0.190	< 0.190	< 0.190	< 0.190	
	6/27/2007	856	< 476	0.835	< 0.288	< 0.192	< 0.192	< 0.192	< 0.192	< 0.192	< 0.192	< 0.192	< 0.385	< 0.192	3.08	< 0.192	0.421	< 0.288	< 0.192	
	6/12/2008	1,050 Q11	< 472	0.495	0.476	0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	1.55	< 0.0952	0.266	< 0.190	< 0.0952	< 0.0952
	6/4/2009	999 Q11	< 476	0.279	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	1.41	< 0.0952	< 0.143	< 0.143	< 0.0952	< 0.0952	
	9/16/2010	2,810 Q11	< 400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	6/10/2011	5,220 Q11	156 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	6/11/2012	3,600 Q11	< 400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
<b>BEBRA Area</b>																				
HC-19	5/10/2004	10,800	1,420	< 1.5	< 0.5	< 1.25	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 1.0	< 0.5	4.3	< 0.5	< 1.75	< 1.0	< 0.5		
	2/11/2005	9,700 J	1,800 J	1.0	--	0.014	0.016	--	--	--	--	0.041	3.1	--	< 0.26	0.054	--	--	--	
	6/3/2005	510 Y	< 500	0.72	< 0.086	0.21	0.023	0.034	0.028	0.025	0.025	0.041	< 0.020	0.076	2.8	0.028	< 0.19	0.17	0.12	
	9/15/2005	< 236	< 472	0.961	< 0.476	< 0.476	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.190	< 0.0952	3.48	< 0.0952	< 0.714	< 0.476	< 0.0952	< 0.0952	
	12/7/2005	< 240	< 481	0.619	< 0.0962	< 0.144	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.192</								

TABLE 4  
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Sample Point	Sample Date	Analyte Concentration in µg/L (ppb)																		
		Polynuclear Aromatic Hydrocarbons (PAHs)																		
		Total Petroleum Hydrocarbons		Diesel-Range	Residual-Range	Acenaphthene	Acenaphthylene	Anthracene	BAA	BAP	BBF	BGP	BKF	Chrysene	DAA	Fluoranthene	Fluorene	ICP	Naphthalene	Phenanthrene
HC-21 (con't)	3/10/2009	569 Q11	< 476	0.336	<0.0952	<0.0952	<0.0952	<0.0952	<b>0.0619 J</b>	0.0566 J	<0.0952	0.054 J	<0.0952	<0.190	<0.0952	1.18	<0.0952	<0.0952	<0.0952	0.0939 J
	6/4/2009	<b>5,070 Q11</b>	802	0.309	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.190	<0.0952	0.77	<0.0952	<0.0952	0.099	0.144	
	9/9/2009	559 Q11	<476	0.284	<0.0952	<0.143	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.190	0.121	1.19	<0.0952	<0.429	<0.143	0.171	
	12/15/2009	<b>3,110 Q11</b>	<472	<0.190	<0.190	<0.190	<0.190	<b>0.216</b>	<0.190	0.196	<0.190	<0.190	<0.381	0.194	<0.190	<0.190	<0.190	<0.190	0.222	
	3/11/2010	387 Q11	<476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	<0.476	
	6/8/2010	246 Q11	<472	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	
	9/16/2010	<b>1,480 Q11</b>	133 J	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	
	12/13/2010	<b>2,080 Q12</b>	631 Q7	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	
	6/9/2011	1,110 Q11	102 J	<0.0943	<0.0943	<0.0943	<0.0943	<b>0.314</b>	<b>0.396</b>	0.343	0.341	0.331	0.340	<0.189	0.409	<0.0943	0.306	<0.0943	0.217	0.506
	12/1/2011	6,890 Q11	<b>1,010</b>	<0.0943	<0.0943	<0.189	<b>0.120</b>	<b>0.185</b>	0.165	0.171	0.128	0.140	<0.189	0.181	<0.0943	0.139	<0.0943	<0.0943	<0.0943	
	6/11/2012	<b>1,300 Q11</b>	<400	<0.095	<0.095	<0.095	<b>0.099</b>	<b>0.098</b>	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	<0.095	
HC-24	5/10/2004	736	< 500	1.21	< 0.25	< 0.3	< 0.1	<b>0.118</b>	0.101	0.101	< 0.1	0.109	< 0.2	0.144	3.51	< 0.1	< 1.5	4.09	0.163	
	2/11/2005	<b>4,500 J</b>	970 J	1.2	--	--	<b>0.11</b>	<b>0.15</b>	--	--	--	--	--	0.18	<b>5.4</b>	--	< 0.55	1.8	--	
	6/6/2005	450 Y	30 J	1.1	< 0.25	0.13	0.021	<b>0.019 J</b>	0.019 J	0.018 J	0.022	< 0.020	0.053	<b>5.0</b>	0.019 J	< 0.63	2.8	0.071	--	
	9/15/2005	<b>4,480 J</b>	536	0.594	< 0.146	< 0.243	<b>0.288</b>	<b>0.370</b>	0.342	0.247	0.363	< 0.194	0.427	3.79	0.224	< 0.874	0.698	0.462	--	
	12/7/2005	837	< 481	0.861	< 0.144	< 0.192	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.192	< 0.0962	2.83	< 0.0962	< 1.06	1.91	< 0.0962		
	3/13/2006	706	< 481	0.441	< 0.153	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102	< 0.102	1.60	< 0.102	< 0.255	1.06	< 0.102	
	6/28/2006	<b>1,020</b>	< 476	1.99	< 0.377	0.363	<b>0.996</b>	<b>1.10</b>	1.97 J	0.834	< 0.189 J	0.989	< 0.377	1.49	<b>6.00</b>	0.754	< 0.943	4.24	1.34	
	9/20/2006	705	< 481	1.49	< 0.481	< 0.481	< 0.753	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	< 0.948	1.02	<b>4.35</b>	0.62	< 0.481	1.00	1.04
	12/13/2006	<b>1,810</b>	< 481	2.10	< 0.962	< 0.962	< 0.962	< 0.962	< 0.962	< 0.962	< 0.962	< 0.962	< 0.962	< 0.962	6.99	< 0.962	< 1.44	5.73	< 0.962	
	3/29/2007	787	< 481	1.01	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	3.43	< 0.0952	< 0.524	1.10	< 0.0952	
	6/27/2007 **	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	9/18/2007	436	< 472	1.05	< 0.286	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	3.53	< 0.0952	< 1.14	1.92	0.12	
	12/6/2007	676	< 476	1.32	< 0.476	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	<b>4.71</b>	< 0.0952	< 0.476	3.72	< 0.0952	
	3/10/2008	<b>2,270</b>	< 476	2.3	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	< 0.952	<b>7.08</b>	< 0.952	< 1.43	<b>6.64</b>	< 0.952	
	6/12/2008	<b>1,150</b>	< 472	1.51	< 0.286	< 0.143	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	<b>4.99</b>	< 0.0952	< 0.429	3.42	< 0.0952	
	9/9/2008	459 Q9	< 481	1.22	< 0.192	0.117	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.0962	< 0.0962	<b>4.74</b>	< 0.0962	< 0.481	0.759	< 0.0962	
	12/29/2008	<b>2,780 Q9</b>	< 500	1.29	< 0.238	0.121	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	<b>4.42</b>	< 0.0952	< 0.476	3.04		

TABLE 4  
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS  
TERMINAL 4 SLIP 3 UPLAND FACILITY  
PORT OF PORTLAND

Sample Point	Sample Date	Analyte Concentration in µg/L (ppb)																	
		Total Petroleum Hydrocarbons		Polynuclear Aromatic Hydrocarbons (PAHs)															
		Diesel-Range	Residual-Range	Acenaphthene	Acenaphthylene	Anthracene	BAA	BAP	BBF	BGP	BKF	Chrysene	DAA	Fluoranthene	Fluorene	ICP	Naphthalene	Phenanthrene	Pyrene
<b>BEBRA Area - Continued</b>																			
BE-3	6/6/2005	640 Y*	<b>1,000 O*</b>	0.33	0.16	0.43	<b>2.8</b>	<b>4.2</b>	3.7	3.8	2.8	3.6	0.79	4.9	0.22	4.1	0.14	1.6	4.9
	9/15/2005	159 J*	< 500*	< 0.100	< 0.100	< 0.100	<b>0.142</b>	<b>0.188</b>	0.179	0.161	0.175	0.190	< 0.200	0.239	< 0.100	0.128	< 0.100	0.0966 J	0.292
	12/7/2005	< 500*	< 1,000*	< 0.200	< 0.200	< 0.200	<b>0.302</b>	<b>0.342</b>	0.371	0.170 J	0.350	0.395	< 0.400	0.612	< 0.200	0.130 J	< 0.200	0.288	0.851
	3/13/2006	91.2 J	< 250	< 0.250	< 0.250	< 0.250	< 0.250	< 0.250	< 0.250	< 0.250	< 0.250	< 0.500	0.349	< 0.250	< 0.250	< 0.250	< 0.250	< 0.250	0.393
	6/28/2006	< 258	< 515	< 0.515	< 0.515	< 0.515	< 0.515	< 0.515	< 0.515	< 0.515	< 0.515	< 0.515	< 1.03	< 0.515	< 0.515	< 0.515	< 0.515	< 0.515	< 0.515
	9/20/2006	< 240	< 481	< 0.130	< 0.130	< 0.130	< 0.0952	<b>0.147</b>	<b>0.193</b>	0.182	0.173	0.152	< 0.130	< 0.260	< 0.130	< 0.130	< 0.130	< 0.130	< 0.130
	12/14/2006	522	< 476	< 0.0952	< 0.0952	< 0.0952	<b>0.147</b>	<b>0.193</b>	0.182	0.173	0.152	< 0.130	< 0.190	0.223	< 0.0952	0.149	< 0.0952	0.155	0.203
	3/30/2007	417	< 267	< 0.0308	< 0.0308	< 0.0308	<b>0.0986</b>	<b>0.131</b>	0.122	0.119	0.0868	0.117	0.0316	0.129	< 0.0308	0.0988	< 0.0615	0.0730	0.173
	6/27/2007	<b>2,270</b>	310 J	< 0.364	< 0.364	< 0.364	<b>0.391</b>	<b>0.424</b>	0.370	0.342 J	0.338 J	0.458	< 0.727	0.702	< 0.364	0.290 J	0.364	0.338 J	1.05
	9/18/2007	210	< 1,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/6/2007	371	< 806	0.0460	< 0.0333	0.0680	<b>0.434</b>	<b>0.604</b>	0.655	0.503	0.439	0.540	< 0.167	1.10	< 0.0667	0.407	0.199	0.316	0.538
	3/12/2008	634 QP, Q11	<714	<0.50	<0.50	<0.10	<b>0.212</b>	<b>0.269</b>	0.281	0.186	0.232	<0.20	0.364	<0.50	0.22	0.228	0.14	0.253	
	6/12/2008	787 Q9	<472	<0.118	<0.118	<0.118	<b>0.302</b>	<b>0.358</b>	0.360	0.272	0.291	0.340	<0.235	0.476	<0.118	0.242	<0.118	0.235	0.578
	9/9/2008	264 Q11	<833	<0.100	<0.100	<0.100	<0.100	<0.100	0.104	<0.100	<0.100	0.175	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	
	12/29/2008	563 Q11	<746	<0.111	<0.111	<0.111	<0.111	<0.111	<0.111	<0.111	<0.111	<0.111	<0.111	<0.222	<0.111	<0.111	<0.111	<0.111	<0.111
	3/9/2009	<133	<833	<0.182	<0.182	<0.182	<0.182	<0.182	<0.182	<0.182	<0.182	<0.182	<0.364	0.120 J	<0.182	<0.182	<0.182	<0.182	0.0915 J
	6/5/2009	<248	<495	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.198	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990
	9/9/2009	--	--	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.200	<0.100	<0.100	<0.100	<0.100	<0.100	
	12/15/2009	--	--	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.194	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	
	3/11/2010	164 Q11	<1,000	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	<0.198	<0.0990	<0.0990	<0.0990	<0.0990	<0.0990	
	6/8/2010	295 Q11	<495	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	<0.190	<0.0952	<0.0952	<0.0952	<0.0952	<0.0952	
	9/16/2010	153 B	<400	<0.133	<0.133	<0.133	<0.133	<0.133	<0.133	<0.133	<0.133	<0.133	<0.267	<0.133	0.171	<0.133	<0.133	0.193	<0.133
	12/13/2010	757 Q12	226 J	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	<0.194	<0.0971	<0.0971	<0.0971	<0.0971	<0.0971	
	6/9/2011	190 J	<400	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	<0.192	<0.0962	<0.0962	<0.0962	<0.0962	<0.0962	
	12/1/2011	762 Q11	353 J	<0.100	<0.100	<0.100	<b>0.165</b>	<b>0.189</b>	0.198	0.168	0.135	0.206	<0.200	0.226	<0.100	0.135	<0.100	<0.100	0.251
	6/11/2012	<400	<400	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.22	<0.11	<0.11	<0.11	<0.11	<0.11	
BE-4	6/3/2005	590 Y	< 500	1.9	< 0.25	< 0.22	0.012 J	< 0.020	< 0.020	< 0.020	< 0.020	0.034	< 0.020	0.036	3.8	< 0.020	< 0.31	< 0.088	0.084
	9/15/2005	<b>1,560 J</b>	< 476	< 0.714	< 0.476	< 0.190	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.0952	< 0.19	< 0.0952	0.844	< 0.0952	< 0.476	< 0.190	< 0.0952
	12/7/2005 **	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3/13/2006 **	--	--																



Base map prepared from USGS 7.5-minute quadrangles as provided by TerraServer.

0 2,000 4,000

Scale in Feet



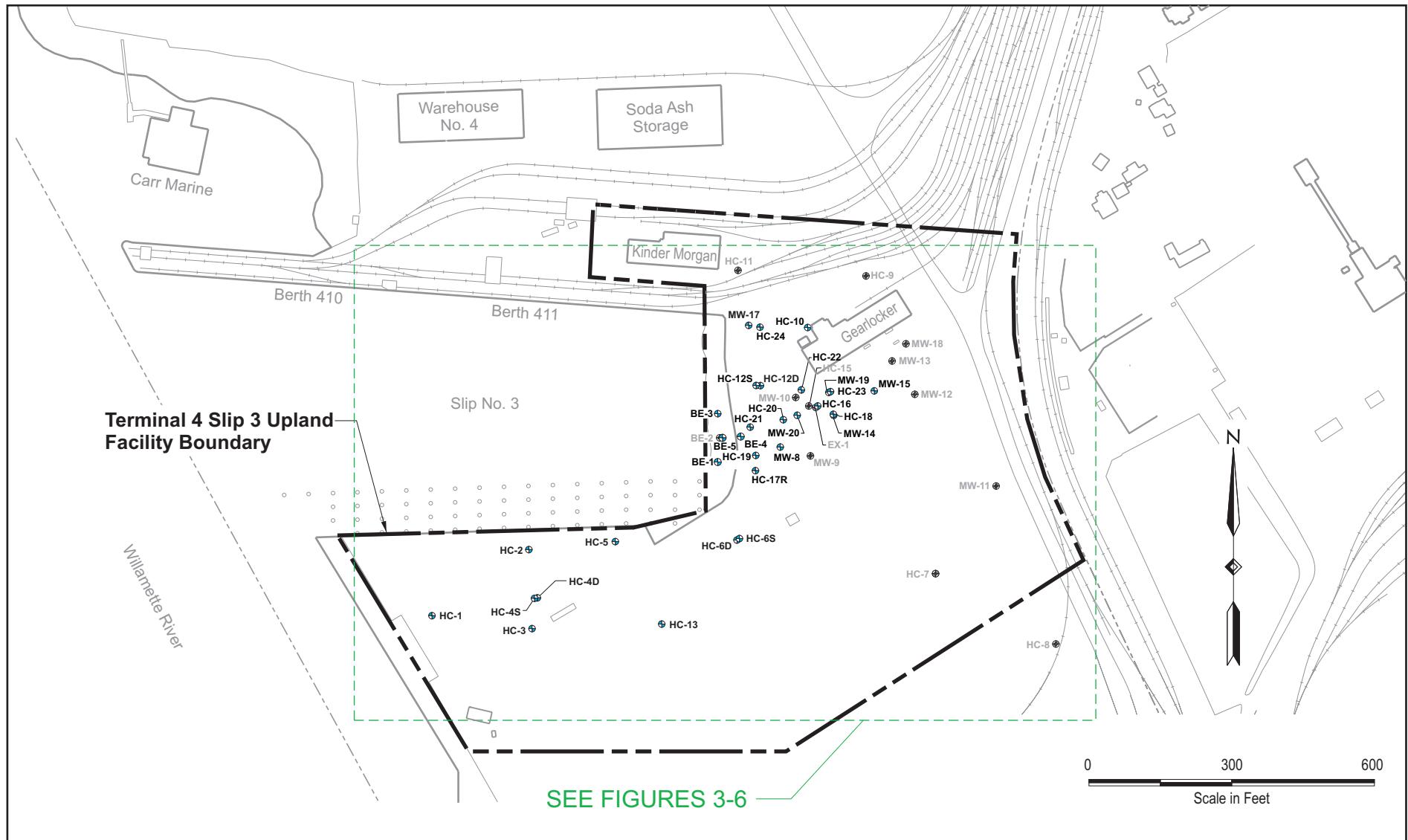
## Facility Location Map

Semi-Annual Report – First Semi-Annual 2012  
Terminal 4 Slip 3 Upland Facility  
Portland, Oregon

 Ash Creek Associates, Inc.  
Environmental and Geotechnical Consultants

Project Number	1007-03
July 2012	

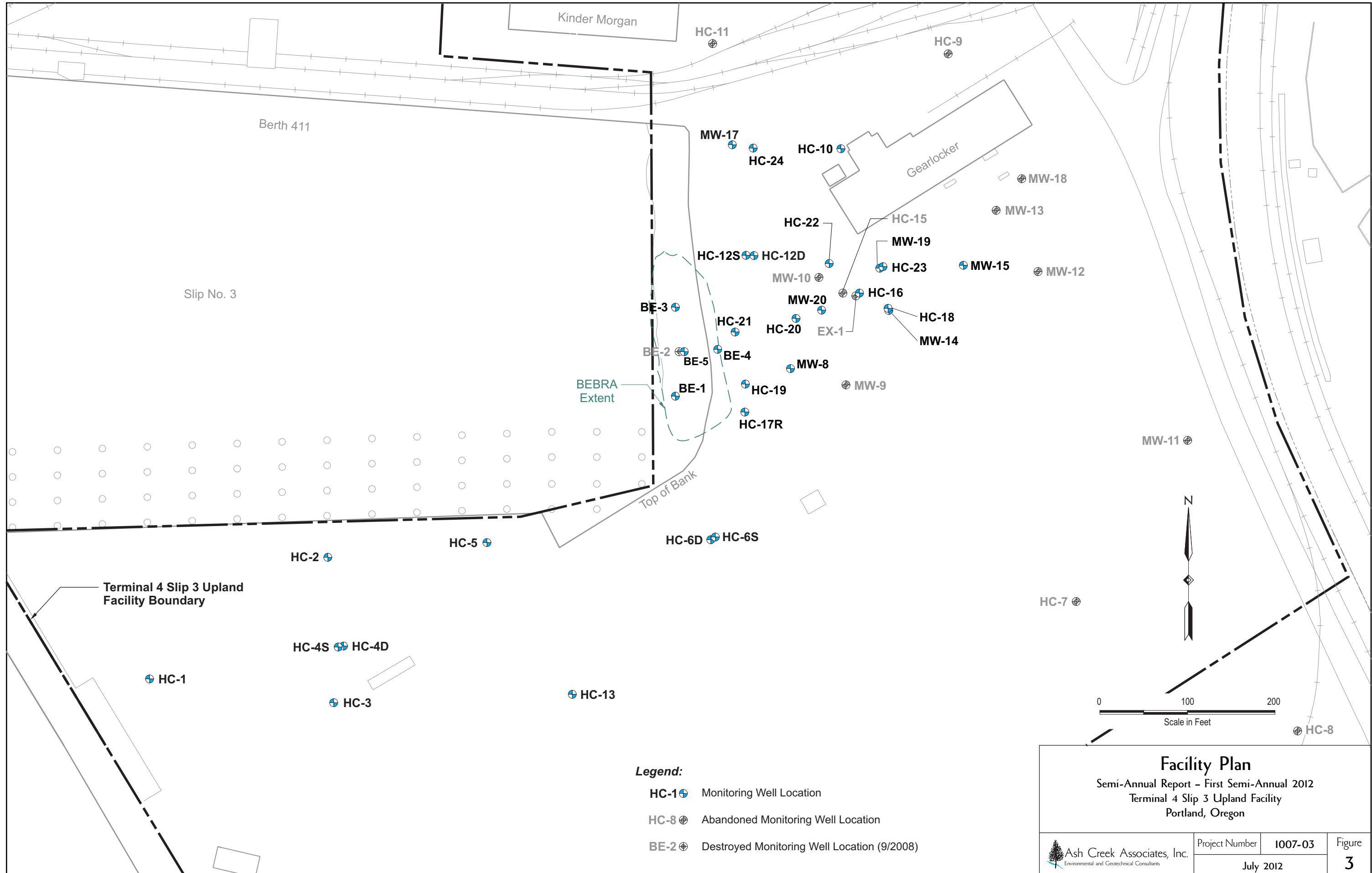
Figure  
I

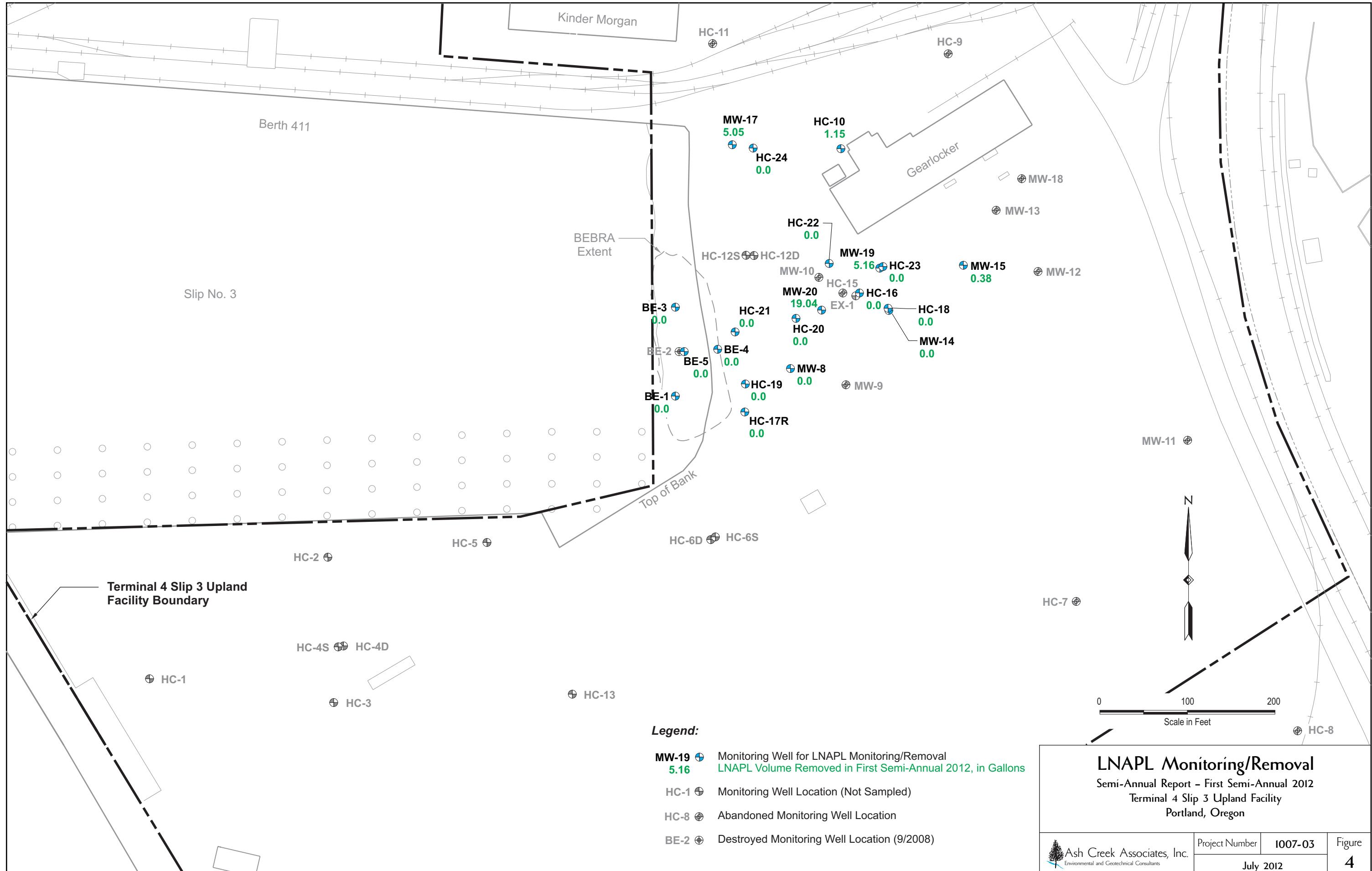


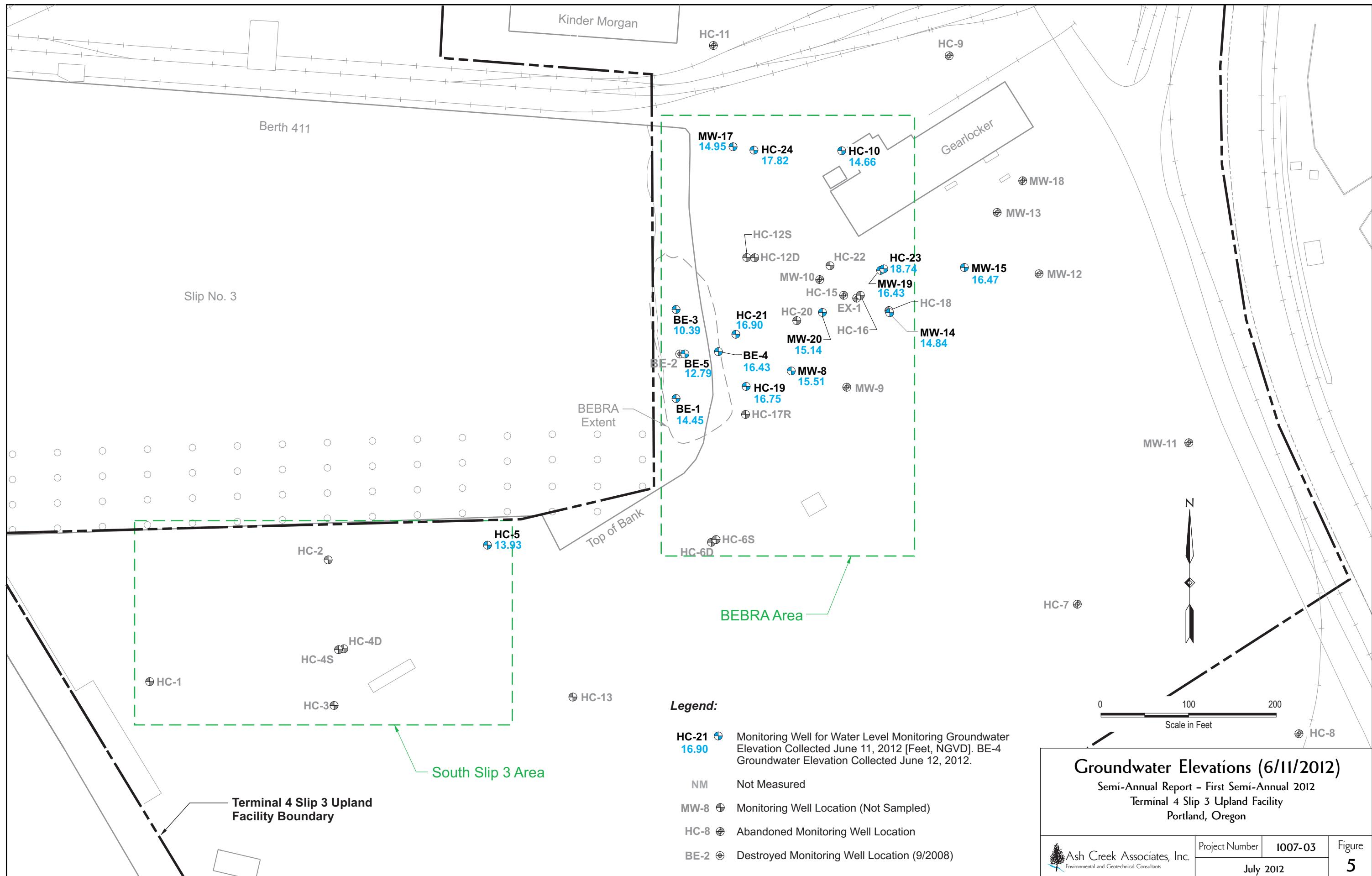
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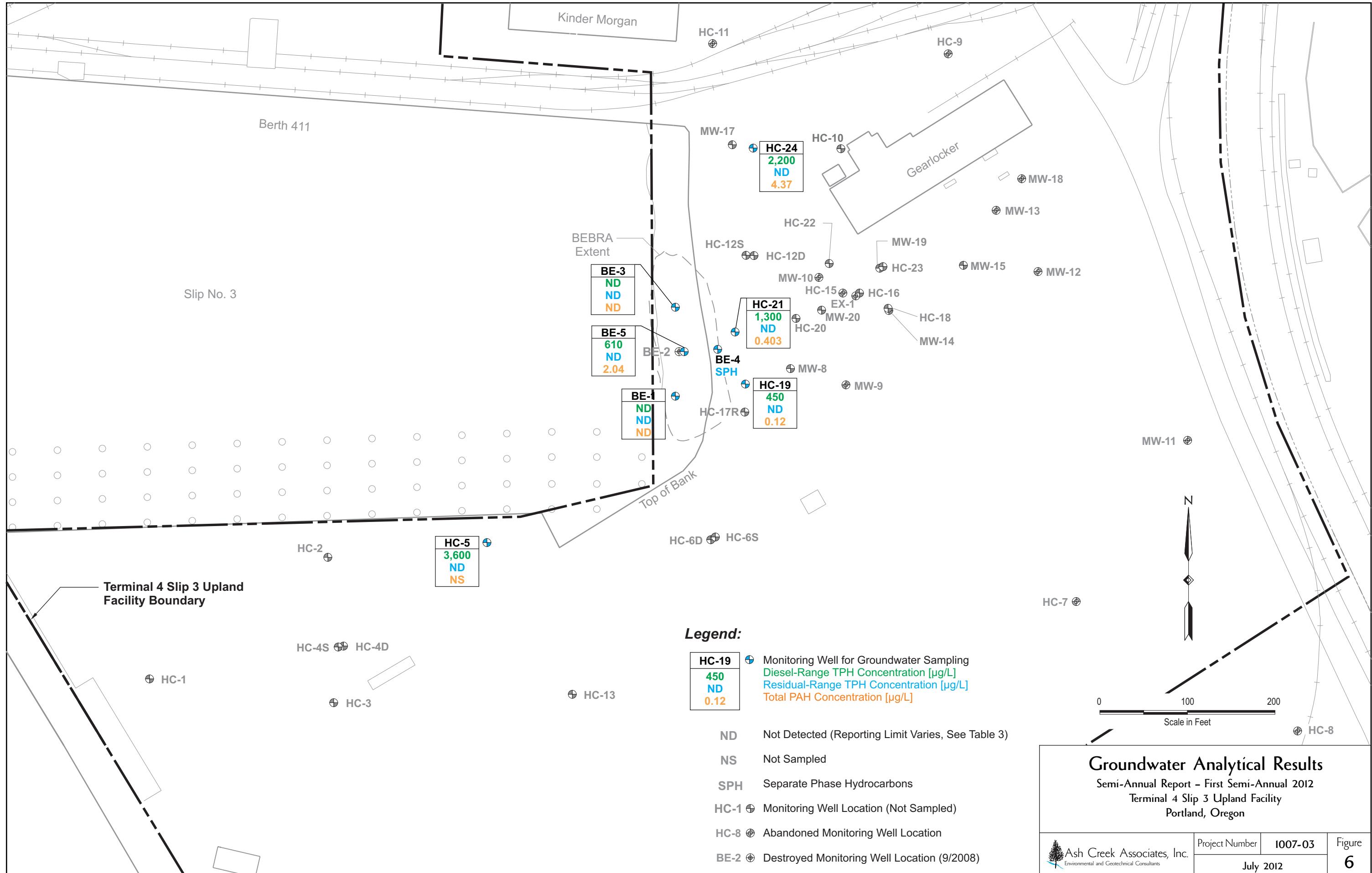
- HC-1 • Monitoring Well Location
- HC-8 • Abandoned Monitoring Well Location
- BE-2 • Destroyed Monitoring Well Location (9/2008)

**Facility Vicinity Plan**  
 Semi-Annual Report – First Semi-Annual 2012  
 Terminal 4 Slip 3 Upland Facility  
 Portland, Oregon









## **Appendix A**

### **Field and QA/QC Procedures**

## **Appendix A – Field and QA/QC Procedures**

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### **Introduction**

The Port of Portland (Port) is required to conduct groundwater and light non-aqueous phase liquid (LNAPL) monitoring in association with the remedial action at the Terminal 4 Slip 3 Upland Facility (the Facility), as outlined in the *Record of Decision* (ROD; Department of Environmental Quality [DEQ], 2003), *Explanation of Significant Difference* (DEQ, 2004), and *Consent Judgment* (Circuit Court of Oregon, 2004). The specific implementation of the remedial action is described in the *Remedial Design/Remedial Action Work Plan* (RD/RA Work Plan; Hart Crowser, 2004), as amended (Port, 2004). The monitoring program is described in the *LNAPL Removal, Groundwater Monitoring, and Construction Plan* (Monitoring Plan; BBL/Ash Creek/Newfields, 2005) and the *Site Closure Evaluation and Recommendation – Groundwater* (Ash Creek, 2009). This appendix describes the field sampling procedures and quality assurance/quality control (QA/QC) procedures that were used during the quarterly monitoring and LNAPL removal event.

### **Field and Sampling Procedures**

The scope of work (SOW) includes measuring water elevations, performing groundwater monitoring, and removing LNAPL from impacted monitoring wells. The field and sampling procedures include the following:

- Measurement of water levels in monitoring wells;
- Collection of groundwater samples from monitoring wells;
- Removal of LNAPL from monitoring wells;
- Sample management (e.g., containers, storage, and shipment);
- Decontamination procedures; and
- Handling of investigation-derived waste (IDW).

#### **Measurement of Water Levels in Monitoring Wells**

Water levels in the wells were measured and recorded for the purpose of determining the groundwater gradient and elevations. The wells were first opened and the water levels allowed to equilibrate before the measurements were taken. Measurements were made to the nearest 0.01 foot using an electronic water probe.

#### **Collection of Groundwater Samples from Monitoring Wells**

Groundwater monitoring consisted of collecting groundwater samples and measuring groundwater field parameters. Field sampling sheets are included in this appendix.



## **Appendix A – Field and QA/QC Procedures**

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After groundwater levels were measured, the selected wells were purged using a peristaltic pump. Wells with measurable thicknesses of LNAPL were not sampled. Purging of the sampled wells was considered complete when the water quality parameters (pH, temperature, and specific conductance) stabilized within 10 percent of the previous readings. BEBRA wells are not purged due to limited water volume. During purging, the purge water characteristics (e.g., color, turbidity, sheens) and purge volumes were documented. After purging was completed, the wells were sampled. Groundwater samples were collected using a low-flow peristaltic pump and disposable tubing. Purge water was placed in labeled drums pending disposal.

**Equipment Cleaning.** Clean tubing was used for the peristaltic pump for each collected groundwater sample to prevent cross-contamination. Other groundwater sampling equipment (such as the water level probe) was cleaned prior to use in the first well and after each subsequent well.

**Duplicate Sample.** For QA/QC purposes, a duplicate sample was collected from one well (HC-19) for chemical analysis. Sample containers for the primary and duplicate samples were alternately filled with water from the well.

### **LNAPL Monitoring and Removal from Monitoring Wells**

Monitoring and removal of LNAPL occurs in wells MW-17, MW-19, MW-20, and BE-4 on a regular schedule as prescribed in the RD/RA Work Plan (Hart Crowser, 2004). During the quarterly groundwater monitoring event, water and product levels were measured in the wells included in the LNAPL program. Each well is monitored for the presence of LNAPL with a product interface probe. Depths to both water and product (if present) were measured and recorded. LNAPL is removed from each monitoring well that is observed to have more than 0.1 foot of accumulated LNAPL. If a removable quantity of LNAPL (>0.1 foot) is observed in any well during the quarterly monitoring event, then it is added to the list of regularly monitored wells for the next quarter. The LNAPL was removed with passive skimmers in wells MW-19 and MW-20, and with a peristaltic pump in the remaining wells.

**Passive Skimmer Product Removal.** After June 9, 2006, passive product skimmers (Keck 4-4L passive recovery canisters) have been used to collect and remove product from wells MW-19 and MW-20. The passive skimmers are maintained so that the water/LNAPL interface is within the 2-foot intake screen of the skimmer. The skimmers are manually removed from the well, drained (through the drain valve), and reinstalled in the well. If residual LNAPL remains in the well after the removal of the skimmer (i.e., the volume of LNAPL in the well was larger than the storage capacity of the skimmer), then the remaining LNAPL is removed as described below. The depth to water is measured in the well and the length of the cable support for each skimmer is adjusted as necessary to reinstall in the wells.

**Manual Product Removal.** For wells with more than 0.1 foot of measured LNAPL, the product removal process generally involves the suction hose of the pump being lowered into the well together with the



## **Appendix A – Field and QA/QC Procedures**

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interface probe (attached to the hose so that the interface point of the probe coincides with the opening of the hose) to allow the operator to judge the depth of the suction hose relative to the oil/water interface and manipulate the depth of the hose so that the floating product is preferentially extracted.

### **Sample Management**

Pre-cleaned, certified sample containers were provided by the contract analytical laboratory (TestAmerica Laboratories of Beaverton, Oregon). A sample label was affixed to each sample container and was marked with a unique sample number, date of collection, project number, and sampler's initials. Chain of custody (COC) was maintained and documented at all times. Sample custody seals and packing materials for filled sample containers were provided by the analytical laboratory. The filled, labeled, sealed containers were placed in a cooler on ice and carefully packed to eliminate the possibility of container breakage.

Samples were packaged by the field personnel and transported as low-concentration environmental samples. Shipments were accompanied by the COC form identifying the contents. The original form accompanied the shipment; copies were retained by the sampler for the sampling office records.

### **Decontamination Procedures**

**Personnel Decontamination.** The Health and Safety Plan (HASP) for the Facility identifies the appropriate level of protection for the type of work and expected field conditions involved in this project. In general, clothing and other protective equipment can be removed from the investigation area. Field personnel should thoroughly wash their hands and faces at the end of each day and before taking any work breaks.

**Sampling Equipment Decontamination.** To prevent cross-contamination between sampling events, clean, dedicated sampling equipment (e.g., groundwater sampling tubing) was used for each sampling event and was discarded after use. Cleaning of non-disposable items consisted of washing in a detergent (Alconox®) solution, rinsing with tap water, followed by a deionized (DI) water rinse.

### **Handling of Investigation-Derived Waste**

IDW was generated from LNAPL removal and well sampling activities. The IDW generated included LNAPL, purge water, decontamination water, and discarded personal protective supplies. LNAPL, purge water, decontamination water, were placed in DOT-approved drums pending off-site disposal/recycling. Used personal protective equipment (PPE) and trash were collected and disposed of in a waste receptacle.



## **Appendix A – Field and QA/QC Procedures**

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### **References**

- Ash Creek, 2009. *Site Closure Evaluation and Recommendation – Groundwater, Terminal 4 Slip 3 Upland Facility.* May 14, 2009.
- BBL/Ash Creek/Newfields, 2005. *LNAPL Removal, Groundwater Monitoring, and Construction Plan.* June 2005.
- Circuit Court of Oregon, Multnomah County, 2004. *Consent Judgment – State of Oregon v. Port of Portland.* October 7, 2004.
- DEQ, 2003. *Record of Decision, Port of Portland Terminal 4 Slip 3 Upland.* April 21, 2003.
- DEQ, 2004. *Explanation of Significant Difference, Port of Portland Terminal 4 Slip 3 Upland Facility.* September 1, 2004.
- Hart Crowser, 2004. *Remedial Design/Remedial Action Work Plan, Terminal 4, Slip 3 Upland Facility.* September 27, 2004.
- Port of Portland, 2004. Letter to DEQ: *Terminal 4 Slip 3 Upland Facility, Response to Comments/Work Plan Addendum, Remedial Design/Remedial Action Work Plan.* October 7, 2004.



## **WELL GAGING DATA SHEET**



Ash Creek Associates, Inc.  
Environmental and Geotechnical Consultants

		Job Number:	1007-03
Client:	Port of Portland	Date:	6/11/12
Project:	T453 ISAD12 GWT	Sampler:	VM
Weather:	CLEAR	Time In/Out:	

## **WATER LEVEL DATA**

## WELL MONITORING DATA SHEET

 <p>Ash Creek Associates, Inc. Environmental and Geotechnical Consultants</p>		Well I.D.	BE-1	Job Number:	1007-03						
		Client:	Port of Portland	Date:	6/12/17						
		Project:	This is a test well	Sampler:	LM						
		Weather:	clear	Time In/Out:							
<b>WELL DATA</b>											
Well Depth:	9.65	Well Diameter:	1-inch	Water Height							
Depth to Water:	5.30	Screened Interval:		x Multiplier							
Water Column Length:		Depth to Free Product:		x Casing Volumes							
Purge Volume:		Free Product Thickness:		= Purge Volume							
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters							
<b>PURGING DATA</b>											
Purge Method:		Penstalite Pump		Pump Intake Depth:	+11 above bottom				Comments		
Sampling Method:		Low Flow		Tubing Type:	ADAE						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
910					+/-0.1	+/-0.5°C	+/-5%	+/- 0.5 ppm	+/-20mV	+/-10%	<-- Stabilization Criteria
					8.14	13.33	947	2.59	-500	-	SC/grey
Dewatered before flowcell full.											
Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear											
<b>SAMPLING DATA</b>											
Sample ID:	BE-1	Sampling Flow Rate				Analytical Laboratory:			Test America		
Sample Time:	1030	Final Depth to Water:				Did Well Dewater?			Yes		
# Containers/Type	Preservative	Analysis/Method		Field Filtered	Filter Size	MS/MSD	Duplicate ID				
1x125ml Amber	HCl	NWTPh-Dy		yes <input checked="" type="radio"/> no <input type="radio"/>							
1x1L Amber	—	PAHs		yes <input checked="" type="radio"/> no <input type="radio"/>							
				yes no							
				yes no							
				yes no							
				yes no							
<b>COMMENTS</b>											

## WELL MONITORING DATA SHEET



Ash Creek Associates, Inc.  
Environmental and Geotechnical Consultants

Well I.D.	BE-3	Job Number:	1007-03
Client:	Port of Portland	Date:	6/11/12
Project:	THSS 1SA2012 Glomar	Sampler:	1M
Weather:	Cloudy	Time In/Out:	

## WELL DATA

Well Depth:		Well Diameter:	1-inch	Water Height	
Depth to Water:	7.16	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

## PURGING DATA

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

## **SAMPLING DATA**

Sample ID:	BC-3	Sampling Flow Rate		Analytical Laboratory:	Test America	
Sample Time:	1325	Final Depth to Water:		Did Well Dewater?	Yes	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
1X125 ml Amber	None	NWTPH-DY	yes	no		
1X1 L Amber	-	PATNS	yes	no		
			yes	no		
			yes	no		
			yes	no		
			yes	no		

## **COMMENTS**

## WELL MONITORING DATA SHEET



# Ash Creek Associates, Inc.

Well I.D.	BE-5	Job Number:	1007-03
Client:	Port of Portland	Date:	6/11/12
Project:	T453 1542012 GWA	Sampler:	1M
Weather:	clear	Time In/Out:	

WELL DATA

Well Depth:		Well Diameter:	1-inch	Water Height	
Depth to Water:	8.33	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

PURGING DATA

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

## **SAMPLING DATA**

Sample ID:	BE-5	Sampling Flow Rate		Analytical Laboratory:	Teng Amerson	
Sample Time:	1316	Final Depth to Water:		Did Well Dewater?	Yes	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
1X175ml Amber	W-1	NISTPM-Dx	yes (no)	-	-	-
1X1L Amber	-	PAHs	yes (no)	-	-	-
			yes no			
			yes no			
			yes no			
			yes no			

## **COMMENTS**

### WELL MONITORING DATA SHEET

 <b>Ash Creek Associates, Inc.</b> Environmental and Geotechnical Consultants				Well I.D.	<u>HC-5</u>		Job Number:	<u>1007-03</u>			
				Client:	<u>Port of Portland</u>		Date:	<u>6/11/12</u>			
				Project:	<u>T453 1SA2012 Gw.m</u>		Sampler:	<u>IM</u>			
				Weather:	<u>Clear (70's)</u>		Time In/Out:	<u>1330</u>			
<b>WELL DATA</b>											
Well Depth:	<u>29.70</u>		Well Diameter:	<u>2-inch</u>		Water Height					
Depth to Water:	<u>18.16</u>		Screened Interval:			x Multiplier					
Water Column Length:			Depth to Free Product:			x Casing Volumes					
Purge Volume:			Free Product Thickness:			= Purge Volume					
Water Height Multipliers (gal)		1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters						
<b>PURGING DATA</b>											
Purge Method:	<u>PERISTALTIC</u>			Pump Intake Depth:		<u>+5' above bottom</u>		Comments			
Sampling Method:	<u>LOW-FLOW</u>			Tubing Type:		<u>LDPE</u>					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (ppm)	ORP (mV)	Turbidity (NTUs)	Clarity/Color Other Remarks
					<u>+/-0.1</u>	<u>+/-0.5° C</u>	<u>+/-5%</u>	<u>+/- 0.5 ppm</u>	<u>+/-20mV</u>	<u>+/-10%</u>	<- Stabilization Criteria
<u>1347</u>		<u>18.37</u>	<u>0.21</u>	<u>7.40</u>	<u>17.54</u>	<u>674</u>	<u>0.63</u>	<u>-15.0</u>	<u>-</u>	<u>-</u>	<u>SC/Brown</u>
<u>1350</u>		<u>18.38</u>	<u>0.18</u>	<u>7.20</u>	<u>17.70</u>	<u>673</u>	<u>0.34</u>	<u>-4.4</u>	<u>-</u>	<u>-</u>	<u>SC/Brown</u>
<u>1353</u>		<u>18.39</u>		<u>7.21</u>	<u>17.47</u>	<u>670</u>	<u>0.28</u>	<u>-3.3</u>	<u>-</u>	<u>-</u>	<u>AC</u>
<u>1356</u>		<u>18.39</u>		<u>7.27</u>	<u>17.20</u>	<u>666</u>	<u>0.21</u>	<u>-3.4</u>	<u>-</u>	<u>-</u>	<u>AC</u>
<u>1359</u>		<u>18.40</u>		<u>7.28</u>	<u>17.14</u>	<u>665</u>	<u>0.19</u>	<u>-3.5</u>	<u>-</u>	<u>-</u>	<u>AC</u>
<u>1402</u>		<u>18.40</u>		<u>7.27</u>	<u>17.06</u>	<u>666</u>	<u>0.20</u>	<u>-3.0</u>	<u>-</u>	<u>-</u>	<u>AC</u>
Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear											
<b>SAMPLING DATA</b>											
Sample ID:	<u>HC-5</u>		Sampling Flow Rate	<u>0.18</u>		Analytical Laboratory:	<u>Test America</u>				
Sample Time:	<u>1405</u>		Final Depth to Water:	<u>18.29</u>		Did Well Dewater?	<u>NO</u>				
# Containers/Type	Preservative	Analysis/Method	Field Filtered		Filter Size	MS/MSD	Duplicate ID				
<u>1x125ml Amber</u>	<u>NCI</u>	<u>NUTRI-DX</u>	yes	<u>no</u>							
			yes	no							
			yes	no							
			yes	no							
			yes	no							
			yes	no							
<b>COMMENTS</b>											

## **WELL MONITORING DATA SHEET**



Ash Creek Associates, Inc.  
Environmental and Geotechnical Consultants

Well I.D.	HC-19	Job Number:	1007-03
Client:	Port of Portland	Date:	6/11/17
Project:	T453 ISA 2012 G41m	Sampler:	LM
Weather:	Partly Sunny (70's)	Time In/Out:	1549

## WELL DATA

Well Depth:	20.62	Well Diameter:	2-inches	Water Height	
Depth to Water:	16.29	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

## PURGING DATA

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

## SAMPLING DATA

Sample ID:	HC-19	Sampling Flow Rate	0.15	Analytical Laboratory:	Test Amherst	
Sample Time:	1620	Final Depth to Water:		Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
1X125 ml Amber	HC1	NNTPH-DX	yes no	—	—	HC-19 Dup
1X16 Amber	—	PAHs	yes no	—	—	HC-19 Dup
			yes no			
			yes no			
			yes no			
			yes no			

## **COMMENTS**

## WELL MONITORING DATA SHEET



Ash Creek Associates, Inc.  
Environmental and Geotechnical Consultants

Well I.D.	HC-21	Job Number:	1007-03
Client:	Part of Foothills	Date:	6/11/12
Project:	TYS3 1SAZ012 GWM	Sampler:	IM
Weather:	P. Cloudy (70%)	Time In/Out:	1430 /

## WELL DATA

Well Depth:	19.24	Well Diameter:	2-inch	Water Height	
Depth to Water:	15.05	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

## PURGING DATA

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

## **SAMPLING DATA**

Sample ID:	HC-21	Sampling Flow Rate	0.168	Analytical Laboratory:	Test America	
Sample Time:	1525	Final Depth to Water:	15.18	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
1x125ml Amber	HCl	NWTPN-Dy	yes no			
1x1L Amber	-	PANs	yes no			
			yes no			
			yes no			
			yes no			
			yes no			

## COMMENTS

## **WELL MONITORING DATA SHEET**



# Ash Creek Associates, Inc.

Environmental and Geotechnical Consultants

Well I.D.	HC-24	Job Number:	1002-03
Client:	Port of Portland	Date:	6/12/12
Project:	THSS 15A 2012 Grav	Sampler:	1m
Weather:	Showers (60%)	Time In/Out:	930/1020

## WELL DATA

Well Depth:	16.21	Well Diameter:	2-inches	Water Height	
Depth to Water:	12.24	Screened Interval:		x Multiplier	
Water Column Length:		Depth to Free Product:		x Casing Volumes	
Purge Volume:		Free Product Thickness:		= Purge Volume	
Water Height Multipliers (gal)	1-inch = 0.041	2-inch = 0.162	4-inch = 0.653	1 gallon = 3.785 liters	

## PURGING DATA

Clarity: VC = very cloudy, CI = Cloudy, SC = slightly cloudy, AC = almost clear, C = clear

## **SAMPLING DATA**

Sample ID:	HC-24	Sampling Flow Rate	0.16	Analytical Laboratory:	Test America	
Sample Time:	1015	Final Depth to Water:	12.42	Did Well Dewater?	No	
# Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
1x125 ml Amber	HCl	NWTPM-DX	yes <input checked="" type="radio"/>	=	=	=
1x1 L Amber	—	PATHs	yes <input checked="" type="radio"/>	=	=	=
			yes no			
			yes no			
			yes no			
			yes no			

## **COMMENTS**

## **Appendix B**

### **Data QA/QC Review and Analytical Laboratory Report**

## **Appendix B – Data QA/QC Review**

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### **Introduction**

This appendix documents the results of a quality assurance (QA) review of the analytical data for groundwater samples collected during the first semi-annual 2012 groundwater sampling event. TestAmerica Laboratories of Beaverton, Oregon performed the analyses. A copy of the analytical laboratory report summary is included in this appendix.

The QA review included examination and validation of the laboratory summary report, including:

- Analytical methods;
- Detection limits;
- Sample holding times;
- Custody records;
- Surrogates, spikes, and blanks; and
- Duplicates.

The QA review did not include a review of raw data.

### **Analytical Methods and Detection Limits**

Chemical analyses on the collected water samples consisted of the following:

- Diesel- and heavy-oil-(residual)-range total petroleum hydrocarbons (TPH) by method NWTPH-Dx with silica gel cleanup; and
- Polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270M-SIM.

### **Quality Assurance Objectives and Review**

The general QA objectives for this project were to develop and implement procedures for obtaining and evaluating data of a quality that is suitable for comparison to regulatory compliance criteria. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual field conditions, and samples must be collected and analyzed using unbroken chain-of-custody (COC) procedures.

Reporting limits and analytical results were compared to action levels for each parameter in the media of concern. Precision, accuracy, representativeness, completeness, and comparability parameters used to indicate data quality are defined below.



## **Appendix B – Data QA/QC Review**

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**Reporting Limits.** Detection limits are set by the laboratory and are based on instrumentation abilities, sample matrix, and suggested detection limits set by the U.S. Environmental Protection Agency (EPA) or the Oregon Department of Environmental Quality (DEQ). The reporting limits for Acenaphthylene and Naphthalene in sample HC-24 were raised due to matrix interferences. Detection limits were generally consistent with industry standards and the method reporting limits (MRLs) were below the relevant *Record of Decision* (ROD) cleanup standards except for benzo(a)anthracene (BAA) and benzo(a)pyrene (BAP; consistent with previous monitoring events).

Reporting limits for individual samples varied based on the magnitude of the chemical impact. Reporting limits were reviewed and are generally acceptable for this project.

**Holding Times.** The samples were analyzed within the holding times specified for the requested analyses.

**Precision.** Precision measures the reproducibility of data under a given set of conditions. Specifically, it is a quantitative measure of the variability of a group of measurements compared to their average values. Analytical precision is measured through a batch laboratory control sample and duplicate (LCS and LCSD, respectively). Analytical precision is quantitatively expressed as the relative percent difference (RPD) between the LCS and LCSD. The LCS/LCSD results were within acceptable ranges.

**Accuracy.** Accuracy is the measure of error between the reported test results and the true sample concentration. "Perfect" accuracy is 100 percent recovery. True sample concentration is never known due to analytical limitations, variability, and error. Consequently, accuracy is inferred from the recovery data from spiked samples. The laboratory performed sufficient spike samples of a similar matrix (i.e., water) to allow the computation of the accuracy. The accuracy measurements were carried out in accordance with SW-846 Method requirements. Surrogate spike results were within acceptable ranges.

A field duplicate was collected by splitting the field sample and submitting both samples for chemical analysis. A duplicate sample was collected from well HC-19. The field duplicate results are compared to the initial result to assess variability in the sample matrix and bias due to sampling procedures (expressed by the RPD between the initial and field duplicate samples). Data quality can be evaluated based on RPDs when the sample concentration is at least five times the reporting limit. Field duplicate RPDs up to 30 percent are considered to be acceptable. TPH as diesel was detected at less than 30 percent above the MRL in the primary sample but was not detected in the duplicate sample. Therefore, results are acceptable.

**Representativeness.** Representativeness is a measure of how closely the results reflect the actual concentration of the chemical parameters in the medium sampled. Sampling procedures, as well as sample-handling protocols for storage, preservation, and transportation, are designed to preserve the

## **Appendix B – Data QA/QC Review**

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representativeness of the samples collected. Laboratory method blanks are run in accordance with established laboratory protocols.

The samples for this project were received by the laboratory in good condition and in the proper, laboratory-supplied containers. No target compounds were detected above the MRL in the laboratory method blanks.

**Completeness.** Completeness is defined as the percentage of measurements made which are judged to be valid measurements. The completeness of the data is the number of acceptable data points divided by the total number of data points, multiplied by 100. The completeness goal is essentially that a sufficient amount of valid data can be generated to allow for the evaluation of the site investigation.

No data collected during the site investigation were rejected for this project; therefore, the completeness for this phase of the project is 100 percent.

**Comparability.** Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Based on this QA review, the quality of the data collected during this site investigation is similar to that of previously collected data and is, therefore, comparable.

**Conclusion.** In conclusion, the overall QA objectives have been met, and the data (as qualified) are of adequate quality for use in this project. The laboratory also noted that the TPH analyses did not have a distinct diesel pattern but most closely resembled heavily weathered diesel.



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Portland

9405 SW Nimbus Ave.

Beaverton, OR 97008

Tel: (503)906-9200

TestAmerica Job ID: 250-3785-1

TestAmerica Sample Delivery Group: 1007-03

Client Project/Site: T4S3 GWM 1SA2012

Revision: 1

For:

Ash Creek Associates, Inc.

3015 SW 1st Avenue

Portland, Oregon 97201

Attn: Michael Pickering

*Vanessa Frahs*

---

Authorized for release by:

7/10/2012 10:47:21 AM

Vanessa Frahs

Project Manager I

[vanessa.frahs@testamericainc.com](mailto:vanessa.frahs@testamericainc.com)

### LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Sample Summary

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-3785-1	BE-1	Water	06/12/12 10:30	06/12/12 16:37
250-3785-2	BE-3	Water	06/11/12 13:25	06/12/12 16:37
250-3785-3	BE-5	Water	06/11/12 13:10	06/12/12 16:37
250-3785-4	HC-5	Water	06/11/12 14:05	06/12/12 16:37
250-3785-5	HC-19	Water	06/11/12 16:20	06/12/12 16:37
250-3785-6	HC-19 DUP	Water	06/11/12 16:20	06/12/12 16:37
250-3785-7	HC-21	Water	06/11/12 15:25	06/12/12 16:37
250-3785-8	HC-24	Water	06/12/12 10:15	06/12/12 16:37

## Case Narrative

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

### Job ID: 250-3785-1

Laboratory: TestAmerica Portland

#### Narrative

##### Comment

Revised Report: Revised case narrative for 8270 PAH, indicating detections in the blank were above the detection limit but below the reporting limit.

##### Receipt

The samples were received on 6/12/2012 4:37 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

##### GC/MS Semi VOA

Method(s) 8270C SIM: The method blank for preparation batch 6519 contained Chrysene, Benzo (b) fluoranthene, Benzo (k) fluoranthene, and Benzo (g,h,i) perylene above 1/2 the reporting limit (RL). This contamination was confirmed by re-analysis. ND samples associated with this method blank were unaffected by this contamination so re-extraction and/or re-analysis of these samples was not performed.

Method(s) 8270C SIM: The method blank for preparation batch 6519 contained Chrysene, Benzo (b) fluoranthene, Benzo (k) fluoranthene, and Benzo (g,h,i) perylene above 1/2 the reporting limit (RL). Sample 3785-3 contained all of these analytes above 1/2 the RL but less than 10 times the level of blank contamination. Sample 3785-7 contained only Benzo (b) fluoranthene above the RL but less than 10 times the level of the blank contamination. There was insufficient sample to perform a re-extraction and/or re-analysis; therefore, the data must be reported. The client must be informed that the results for these compounds in these samples may be subject to a high bias as a result of laboratory contamination and must therefore be considered to be of limited value.

Method(s) 8270C SIM: The following sample(s) was diluted due to the nature of the sample matrix: HC-24 (250-3785-8). Elevated reporting limits (RLs) are provided.

No other analytical or quality issues were noted.

##### GC Semi VOA

Method(s) NWTPH-Dx: Detected hydrocarbons appear to be due to heavily weathered diesel.BE-5 (250-3785-3), HC-19 (250-3785-5), HC-21 (250-3785-7), HC-24 (250-3785-8), HC-5 (250-3785-4)

No other analytical or quality issues were noted.

##### Organic Prep

No analytical or quality issues were noted.

## Definitions/Glossary

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
⊗	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Client Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Client Sample ID: BE-1**

**Date Collected: 06/12/12 10:30**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-1**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Acenaphthylene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Anthracene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Benzo[a]anthracene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Benzo[a]pyrene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Benzo[b]fluoranthene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Benzo[g,h,i]perylene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Benzo[k]fluoranthene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Chrysene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Dibenz(a,h)anthracene	ND		0.20		ug/L		06/18/12 11:48	06/19/12 18:03	1
Fluoranthene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Fluorene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Indeno[1,2,3-cd]pyrene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Naphthalene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Phenanthrene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
Pyrene	ND		0.099		ug/L		06/18/12 11:48	06/19/12 18:03	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Fluorene-d10 (Surr)	81		25 - 125				06/18/12 11:48	06/19/12 18:03	1
Pyrene-d10 (Surr)	96		25 - 150				06/18/12 11:48	06/19/12 18:03	1
Benzo(a)pyrene-d12 (Surr)	90		10 - 125				06/18/12 11:48	06/19/12 18:03	1

**Client Sample ID: BE-3**

**Date Collected: 06/11/12 13:25**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-2**  
**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Acenaphthylene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Anthracene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Benzo[a]anthracene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Benzo[a]pyrene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Benzo[b]fluoranthene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Benzo[g,h,i]perylene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Benzo[k]fluoranthene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Chrysene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Dibenz(a,h)anthracene	ND		0.22		ug/L		06/18/12 11:48	06/19/12 18:33	1
Fluoranthene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Fluorene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Indeno[1,2,3-cd]pyrene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Naphthalene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Phenanthrene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
Pyrene	ND		0.11		ug/L		06/18/12 11:48	06/19/12 18:33	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Fluorene-d10 (Surr)	87		25 - 125				06/18/12 11:48	06/19/12 18:33	1
Pyrene-d10 (Surr)	93		25 - 150				06/18/12 11:48	06/19/12 18:33	1
Benzo(a)pyrene-d12 (Surr)	86		10 - 125				06/18/12 11:48	06/19/12 18:33	1

# Client Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Client Sample ID: BE-5**

**Date Collected: 06/11/12 13:10**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-3**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
Acenaphthylene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
Anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Benzo[a]anthracene</b>	<b>0.16</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Benzo[a]pyrene</b>	<b>0.21</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Benzo[b]fluoranthene</b>	<b>0.19</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Benzo[g,h,i]perylene</b>	<b>0.16</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Benzo[k]fluoranthene</b>	<b>0.18</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Chrysene</b>	<b>0.20</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
Dibenz(a,h)anthracene	ND		0.19		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Fluoranthene</b>	<b>0.29</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
Fluorene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Indeno[1,2,3-cd]pyrene</b>	<b>0.13</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
Naphthalene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Phenanthrene</b>	<b>0.15</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Pyrene</b>	<b>0.37</b>		0.095		ug/L		06/18/12 11:48	06/19/12 19:04	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Fluorene-d10 (Surr)	91		25 - 125				06/18/12 11:48	06/19/12 19:04	1
Pyrene-d10 (Surr)	94		25 - 150				06/18/12 11:48	06/19/12 19:04	1
Benzo(a)pyrene-d12 (Surr)	86		10 - 125				06/18/12 11:48	06/19/12 19:04	1

**Client Sample ID: HC-19**

**Date Collected: 06/11/12 16:20**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-5**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
Acenaphthylene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
Anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
<b>Benzo[a]anthracene</b>	<b>ND</b>		<b>0.095</b>		ug/L		<b>06/18/12 11:48</b>	<b>06/19/12 20:24</b>	1
<b>Benzo[a]pyrene</b>	<b>ND</b>		<b>0.095</b>		ug/L		<b>06/18/12 11:48</b>	<b>06/19/12 20:24</b>	1
<b>Benzo[b]fluoranthene</b>	<b>ND</b>		<b>0.095</b>		ug/L		<b>06/18/12 11:48</b>	<b>06/19/12 20:24</b>	1
<b>Benzo[g,h,i]perylene</b>	<b>ND</b>		<b>0.095</b>		ug/L		<b>06/18/12 11:48</b>	<b>06/19/12 20:24</b>	1
<b>Benzo[k]fluoranthene</b>	<b>ND</b>		<b>0.095</b>		ug/L		<b>06/18/12 11:48</b>	<b>06/19/12 20:24</b>	1
Chrysene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
Dibenz(a,h)anthracene	ND		0.19		ug/L		06/18/12 11:48	06/19/12 20:24	1
Fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
<b>Fluorene</b>	<b>0.10</b>		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
Indeno[1,2,3-cd]pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
Naphthalene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
Phenanthrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
Pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:24	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Fluorene-d10 (Surr)	89		25 - 125				06/18/12 11:48	06/19/12 20:24	1
Pyrene-d10 (Surr)	94		25 - 150				06/18/12 11:48	06/19/12 20:24	1
Benzo(a)pyrene-d12 (Surr)	87		10 - 125				06/18/12 11:48	06/19/12 20:24	1

# Client Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Client Sample ID: HC-19 DUP**

**Date Collected: 06/11/12 16:20**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-6**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Acenaphthylene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Benzo[a]anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Benzo[a]pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Benzo[b]fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Benzo[g,h,i]perylene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Benzo[k]fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Chrysene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Dibenz(a,h)anthracene	ND		0.19		ug/L		06/18/12 11:48	06/19/12 20:55	1
Fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
<b>Fluorene</b>	<b>0.12</b>		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Indeno[1,2,3-cd]pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Naphthalene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Phenanthrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
Pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 20:55	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Fluorene-d10 (Surr)	88		25 - 125				06/18/12 11:48	06/19/12 20:55	1
Pyrene-d10 (Surr)	95		25 - 150				06/18/12 11:48	06/19/12 20:55	1
Benzo(a)pyrene-d12 (Surr)	91		10 - 125				06/18/12 11:48	06/19/12 20:55	1

**Client Sample ID: HC-21**

**Date Collected: 06/11/12 15:25**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-7**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Acenaphthylene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Benzo[a]anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
<b>Benzo[a]pyrene</b>	<b>0.099</b>		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
<b>Benzo[b]fluoranthene</b>	<b>0.098</b>		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Benzo[g,h,i]perylene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Benzo[k]fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Chrysene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Dibenz(a,h)anthracene	ND		0.19		ug/L		06/18/12 11:48	06/19/12 21:26	1
<b>Fluoranthene</b>	<b>0.11</b>		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Fluorene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Indeno[1,2,3-cd]pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Naphthalene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
Phenanthrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
<b>Pyrene</b>	<b>0.096</b>		0.095		ug/L		06/18/12 11:48	06/19/12 21:26	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Fluorene-d10 (Surr)	91		25 - 125				06/18/12 11:48	06/19/12 21:26	1
Pyrene-d10 (Surr)	95		25 - 150				06/18/12 11:48	06/19/12 21:26	1
Benzo(a)pyrene-d12 (Surr)	90		10 - 125				06/18/12 11:48	06/19/12 21:26	1

# Client Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Client Sample ID: HC-24**

**Date Collected: 06/12/12 10:15**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-8**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Acenaphthene</b>	<b>1.1</b>		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Acenaphthylene	ND		0.48		ug/L		06/18/12 11:48	06/21/12 15:54	5
Anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Benzo[a]anthracene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Benzo[a]pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Benzo[b]fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Benzo[g,h,i]perylene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Benzo[k]fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Chrysene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Dibenz(a,h)anthracene	ND		0.19		ug/L		06/18/12 11:48	06/19/12 21:56	1
Fluoranthene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
<b>Fluorene</b>	<b>2.7</b>		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Indeno[1,2,3-cd]pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Naphthalene	ND		0.48		ug/L		06/18/12 11:48	06/21/12 15:54	5
<b>Phenanthrene</b>	<b>0.57</b>		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Pyrene	ND		0.095		ug/L		06/18/12 11:48	06/19/12 21:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Fluorene-d10 (Surr)	78		25 - 125				06/18/12 11:48	06/19/12 21:56	1
Fluorene-d10 (Surr)	99		25 - 125				06/18/12 11:48	06/21/12 15:54	5
Pyrene-d10 (Surr)	95		25 - 150				06/18/12 11:48	06/19/12 21:56	1
Pyrene-d10 (Surr)	103		25 - 150				06/18/12 11:48	06/21/12 15:54	5
Benzo(a)pyrene-d12 (Surr)	92		10 - 125				06/18/12 11:48	06/19/12 21:56	1
Benzo(a)pyrene-d12 (Surr)	97		10 - 125				06/18/12 11:48	06/21/12 15:54	5

# Client Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

**Client Sample ID: BE-1**

**Date Collected: 06/12/12 10:30**

**Date Received: 06/12/12 16:37**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 11:52	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 11:52	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1-Chlorooctadecane	79		50 - 150				06/18/12 08:00	06/18/12 11:52	1

**Lab Sample ID: 250-3785-1**

**Matrix: Water**

**Client Sample ID: BE-3**

**Date Collected: 06/11/12 13:25**

**Date Received: 06/12/12 16:37**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 12:08	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 12:08	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1-Chlorooctadecane	70		50 - 150				06/18/12 08:00	06/18/12 12:08	1

**Lab Sample ID: 250-3785-2**

**Matrix: Water**

**Client Sample ID: BE-5**

**Date Collected: 06/11/12 13:10**

**Date Received: 06/12/12 16:37**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	0.61		0.40		mg/L		06/18/12 08:00	06/18/12 12:24	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 12:24	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1-Chlorooctadecane	78		50 - 150				06/18/12 08:00	06/18/12 12:24	1

**Lab Sample ID: 250-3785-3**

**Matrix: Water**

**Client Sample ID: HC-5**

**Date Collected: 06/11/12 14:05**

**Date Received: 06/12/12 16:37**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	3.6		0.40		mg/L		06/18/12 08:00	06/18/12 12:40	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 12:40	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1-Chlorooctadecane	81		50 - 150				06/18/12 08:00	06/18/12 12:40	1

**Lab Sample ID: 250-3785-4**

**Matrix: Water**

**Client Sample ID: HC-19**

**Date Collected: 06/11/12 16:20**

**Date Received: 06/12/12 16:37**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	0.45		0.40		mg/L		06/18/12 08:00	06/18/12 12:57	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 12:57	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1-Chlorooctadecane	74		50 - 150				06/18/12 08:00	06/18/12 12:57	1

**Lab Sample ID: 250-3785-5**

**Matrix: Water**

**Client Sample ID: HC-19 DUP**

**Date Collected: 06/11/12 16:20**

**Date Received: 06/12/12 16:37**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 13:13	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 13:13	1

**Lab Sample ID: 250-3785-6**

**Matrix: Water**

# Client Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## **Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	75		50 - 150	06/18/12 08:00	06/18/12 13:13	1

**Client Sample ID: HC-21**

**Date Collected: 06/11/12 15:25**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-7**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	1.3		0.40		mg/L		06/18/12 08:00	06/18/12 13:29	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 13:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	76		50 - 150				06/18/12 08:00	06/18/12 13:29	1

**Client Sample ID: HC-24**

**Date Collected: 06/12/12 10:15**

**Date Received: 06/12/12 16:37**

**Lab Sample ID: 250-3785-8**

**Matrix: Water**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C25)	2.2		0.40		mg/L		06/18/12 08:00	06/18/12 14:15	1
RRO (nC25-nC36)	ND		0.40		mg/L		06/18/12 08:00	06/18/12 14:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	79		50 - 150				06/18/12 08:00	06/18/12 14:15	1

12

# QC Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

**Lab Sample ID:** MB 250-6519/1-A

**Matrix:** Water

**Analysis Batch:** 6651

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 6519

Analyte	MB	MB	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							Prepared	Analyzed	Dil Fac
Acenaphthene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Acenaphthylene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Anthracene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Benzo[a]anthracene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Benzo[a]pyrene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Benzo[b]fluoranthene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Benzo[g,h,i]perylene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Benzo[k]fluoranthene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Chrysene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Dibenz(a,h)anthracene	ND				0.20		ug/L		06/18/12 11:48	06/19/12 15:30	1
Fluoranthene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Fluorene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Indeno[1,2,3-cd]pyrene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Naphthalene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Phenanthrene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1
Pyrene	ND				0.10		ug/L		06/18/12 11:48	06/19/12 15:30	1

Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Fluorene-d10 (Surr)	100		25 - 125			06/18/12 11:48	06/19/12 15:30	1
Pyrene-d10 (Surr)	109		25 - 150			06/18/12 11:48	06/19/12 15:30	1
Benzo(a)pyrene-d12 (Surr)	102		10 - 125			06/18/12 11:48	06/19/12 15:30	1

**Lab Sample ID:** LCS 250-6519/2-A

**Matrix:** Water

**Analysis Batch:** 6651

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 6519

Analyte	MB	MB	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits	%Rec.
	Result	Qualifier								
Acenaphthene			2.50	2.62		ug/L		105	25 - 135	
Acenaphthylene			2.50	2.45		ug/L		98	30 - 120	
Anthracene			2.50	2.58		ug/L		103	30 - 120	
Benzo[a]anthracene			2.50	2.52		ug/L		101	35 - 130	
Benzo[a]pyrene			2.50	2.84		ug/L		114	40 - 135	
Benzo[b]fluoranthene			2.50	2.89		ug/L		116	35 - 130	
Benzo[g,h,i]perylene			2.50	2.73		ug/L		109	30 - 125	
Benzo[k]fluoranthene			2.50	3.12		ug/L		125	30 - 145	
Chrysene			2.50	2.63		ug/L		105	30 - 135	
Dibenz(a,h)anthracene			2.50	2.72		ug/L		109	30 - 140	
Fluoranthene			2.50	2.40		ug/L		96	30 - 125	
Fluorene			2.50	2.64		ug/L		105	30 - 125	
Indeno[1,2,3-cd]pyrene			2.50	2.73		ug/L		109	30 - 135	
Naphthalene			2.50	2.44		ug/L		97	30 - 115	
Phenanthrene			2.50	2.60		ug/L		104	35 - 125	
Pyrene			2.50	2.69		ug/L		108	35 - 135	

Surrogate	MB	MB	%Recovery	Qualifier	Limits	Prepared		
	Result	Qualifier				Prepared	Analyzed	Dil Fac
Fluorene-d10 (Surr)	96		25 - 125					
Pyrene-d10 (Surr)	99		25 - 150					
Benzo(a)pyrene-d12 (Surr)	101		10 - 125					

# QC Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCSD 250-6519/3-A**

**Matrix: Water**

**Analysis Batch: 6651**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 6519**

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	RPD	Limit
	Added	Result	Qualifier				Limits	4	35	
Acenaphthene	2.50	2.51		ug/L		100	25 - 135			
Acenaphthylene	2.50	2.36		ug/L		94	30 - 120	4	35	
Anthracene	2.50	2.49		ug/L		100	30 - 120	3	35	
Benzo[a]anthracene	2.50	2.46		ug/L		98	35 - 130	3	35	
Benzo[a]pyrene	2.50	2.63		ug/L		105	40 - 135	8	35	
Benzo[b]fluoranthene	2.50	2.63		ug/L		105	35 - 130	9	35	
Benzo[g,h,i]perylene	2.50	2.50		ug/L		100	30 - 125	9	35	
Benzo[k]fluoranthene	2.50	2.94		ug/L		117	30 - 145	6	35	
Chrysene	2.50	2.53		ug/L		101	30 - 135	4	35	
Dibenz(a,h)anthracene	2.50	2.48		ug/L		99	30 - 140	9	35	
Fluoranthene	2.50	2.31		ug/L		92	30 - 125	4	35	
Fluorene	2.50	2.52		ug/L		101	30 - 125	5	35	
Indeno[1,2,3-cd]pyrene	2.50	2.50		ug/L		100	30 - 135	9	35	
Naphthalene	2.50	2.37		ug/L		95	30 - 115	3	35	
Phenanthrene	2.50	2.51		ug/L		100	35 - 125	4	35	
Pyrene	2.50	2.60		ug/L		104	35 - 135	3	35	

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
Fluorene-d10 (Surr)	93		25 - 125
Pyrene-d10 (Surr)	95		25 - 150
Benzo(a)pyrene-d12 (Surr)	94		10 - 125

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

**Lab Sample ID: MB 250-6494/1-B**

**Matrix: Water**

**Analysis Batch: 6515**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 6494**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
DRO (C10-C25)	ND		0.50		mg/L		06/18/12 08:00	06/18/12 11:02	1
RRO (nC25-nC36)	ND		0.50		mg/L		06/18/12 08:00	06/18/12 11:02	1
Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
1-Chlorooctadecane	91		50 - 150				06/18/12 08:00	06/18/12 11:02	1

**Lab Sample ID: LCS 250-6494/2-B**

**Matrix: Water**

**Analysis Batch: 6515**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 6494**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				Limits
DRO (C10-C25)	12.5	9.88		mg/L		79	50 - 150
RRO (nC25-nC36)	7.50	5.76		mg/L		77	50 - 150
Surrogate	LCS	LCS	Limits	Prepared	Analyzed	Dil Fac	Prepared
	%Recovery	Qualifier					
1-Chlorooctadecane	77		50 - 150				06/18/12 08:00

# QC Sample Results

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

**Lab Sample ID: LCSD 250-6494/3-B**

**Matrix: Water**

**Analysis Batch: 6515**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 6494**

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec.	RPD	Limit
		Result	Qualifier			%Rec		
DRO (C10-C25)	12.5	9.68		mg/L	77	50 - 150	2	20
RRO (nC25-nC36)	7.50	5.77		mg/L	77	50 - 150	0	20
<hr/>								
<i>Surrogate</i>		LCSD	LCSD	<i>Limits</i>				
		%Recovery	Qualifier					
1-Chlorooctadecane		74		50 - 150				

# QC Association Summary

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

## GC/MS Semi VOA

### Prep Batch: 6519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-3785-1	BE-1	Total/NA	Water	3520C	
250-3785-2	BE-3	Total/NA	Water	3520C	
250-3785-3	BE-5	Total/NA	Water	3520C	
250-3785-5	HC-19	Total/NA	Water	3520C	
250-3785-6	HC-19 DUP	Total/NA	Water	3520C	
250-3785-7	HC-21	Total/NA	Water	3520C	
250-3785-8	HC-24	Total/NA	Water	3520C	
LCS 250-6519/2-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 250-6519/3-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 250-6519/1-A	Method Blank	Total/NA	Water	3520C	

### Analysis Batch: 6651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-3785-1	BE-1	Total/NA	Water	8270C SIM	6519
250-3785-2	BE-3	Total/NA	Water	8270C SIM	6519
250-3785-3	BE-5	Total/NA	Water	8270C SIM	6519
250-3785-5	HC-19	Total/NA	Water	8270C SIM	6519
250-3785-6	HC-19 DUP	Total/NA	Water	8270C SIM	6519
250-3785-7	HC-21	Total/NA	Water	8270C SIM	6519
250-3785-8	HC-24	Total/NA	Water	8270C SIM	6519
LCS 250-6519/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	6519
LCSD 250-6519/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	6519
MB 250-6519/1-A	Method Blank	Total/NA	Water	8270C SIM	6519

### Analysis Batch: 6759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-3785-8	HC-24	Total/NA	Water	8270C SIM	6519

## GC Semi VOA

### Prep Batch: 6494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-3785-1	BE-1	Total/NA	Water	3510C	
250-3785-2	BE-3	Total/NA	Water	3510C	
250-3785-3	BE-5	Total/NA	Water	3510C	
250-3785-4	HC-5	Total/NA	Water	3510C	
250-3785-5	HC-19	Total/NA	Water	3510C	
250-3785-6	HC-19 DUP	Total/NA	Water	3510C	
250-3785-7	HC-21	Total/NA	Water	3510C	
250-3785-8	HC-24	Total/NA	Water	3510C	
LCS 250-6494/2-B	Lab Control Sample	Total/NA	Water	3510C	
LCSD 250-6494/3-B	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 250-6494/1-B	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 6515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-3785-1	BE-1	Total/NA	Water	NWTPH-Dx	6494
250-3785-2	BE-3	Total/NA	Water	NWTPH-Dx	6494
250-3785-3	BE-5	Total/NA	Water	NWTPH-Dx	6494
250-3785-4	HC-5	Total/NA	Water	NWTPH-Dx	6494
250-3785-5	HC-19	Total/NA	Water	NWTPH-Dx	6494
250-3785-6	HC-19 DUP	Total/NA	Water	NWTPH-Dx	6494

## QC Association Summary

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

### GC Semi VOA (Continued)

#### Analysis Batch: 6515 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
250-3785-7	HC-21	Total/NA	Water	NWTPH-Dx	6494
250-3785-8	HC-24	Total/NA	Water	NWTPH-Dx	6494
LCS 250-6494/2-B	Lab Control Sample	Total/NA	Water	NWTPH-Dx	6494
LCSD 250-6494/3-B	Lab Control Sample Dup	Total/NA	Water	NWTPH-Dx	6494
MB 250-6494/1-B	Method Blank	Total/NA	Water	NWTPH-Dx	6494

## Certification Summary

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Portland	Alaska	State Program	10	OR00040
TestAmerica Portland	Alaska (UST)	State Program	10	UST-012
TestAmerica Portland	California	State Program	9	2597
TestAmerica Portland	Oregon	NELAC	10	OR100021
TestAmerica Portland	USDA	Federal		P330-11-00092
TestAmerica Portland	Washington	State Program	10	C586

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

## Method Summary

Client: Ash Creek Associates, Inc.  
Project/Site: T4S3 GWM 1SA2012

TestAmerica Job ID: 250-3785-1  
SDG: 1007-03

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL PRT
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL PRT

**Protocol References:**

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200



## Login Sample Receipt Checklist

Client: Ash Creek Associates, Inc.

Job Number: 250-3785-1

SDG Number: 1007-03

**Login Number: 3785**

**List Source: TestAmerica Portland**

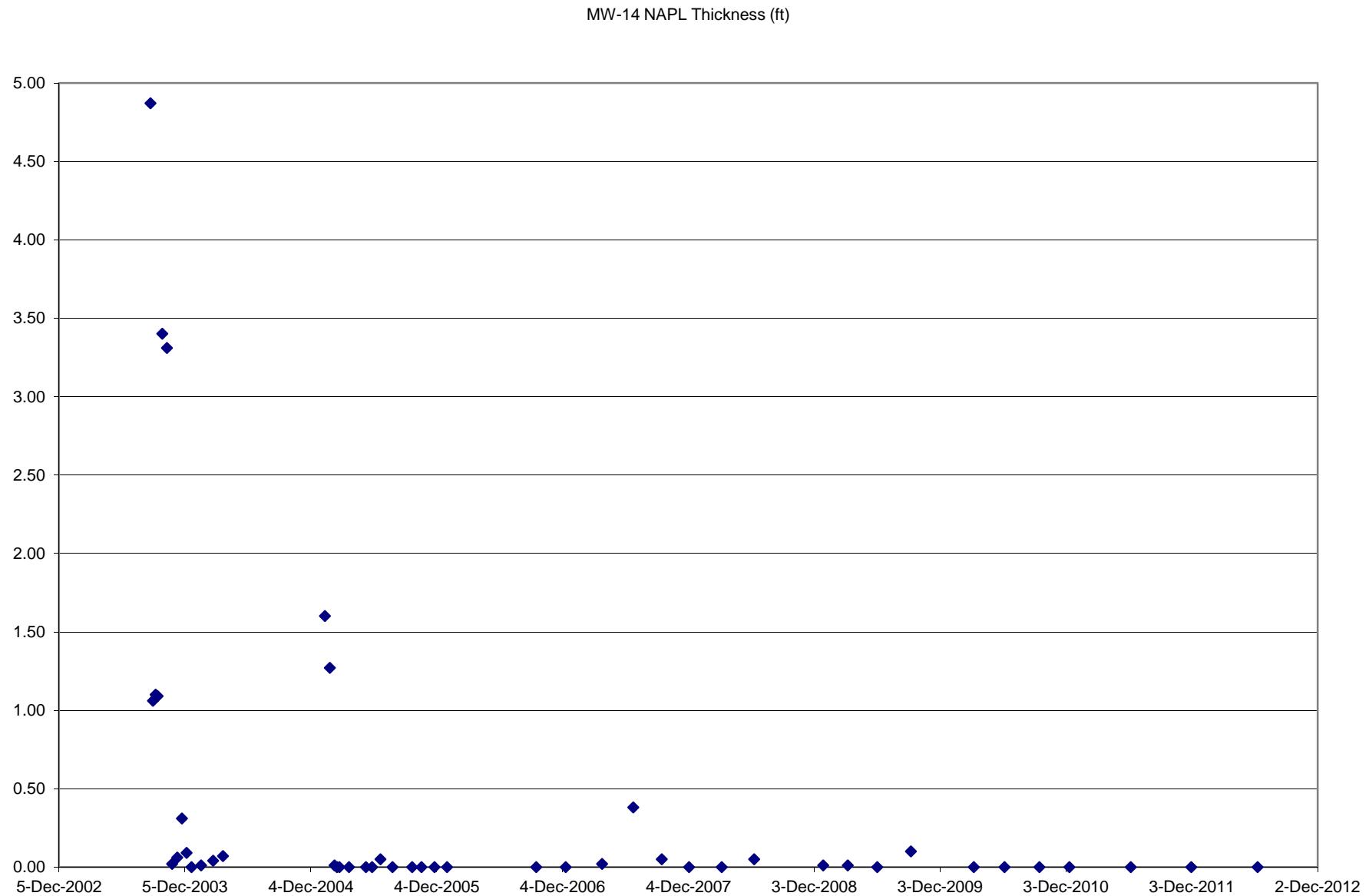
**List Number: 1**

**Creator: Svabik-Seror, Philip**

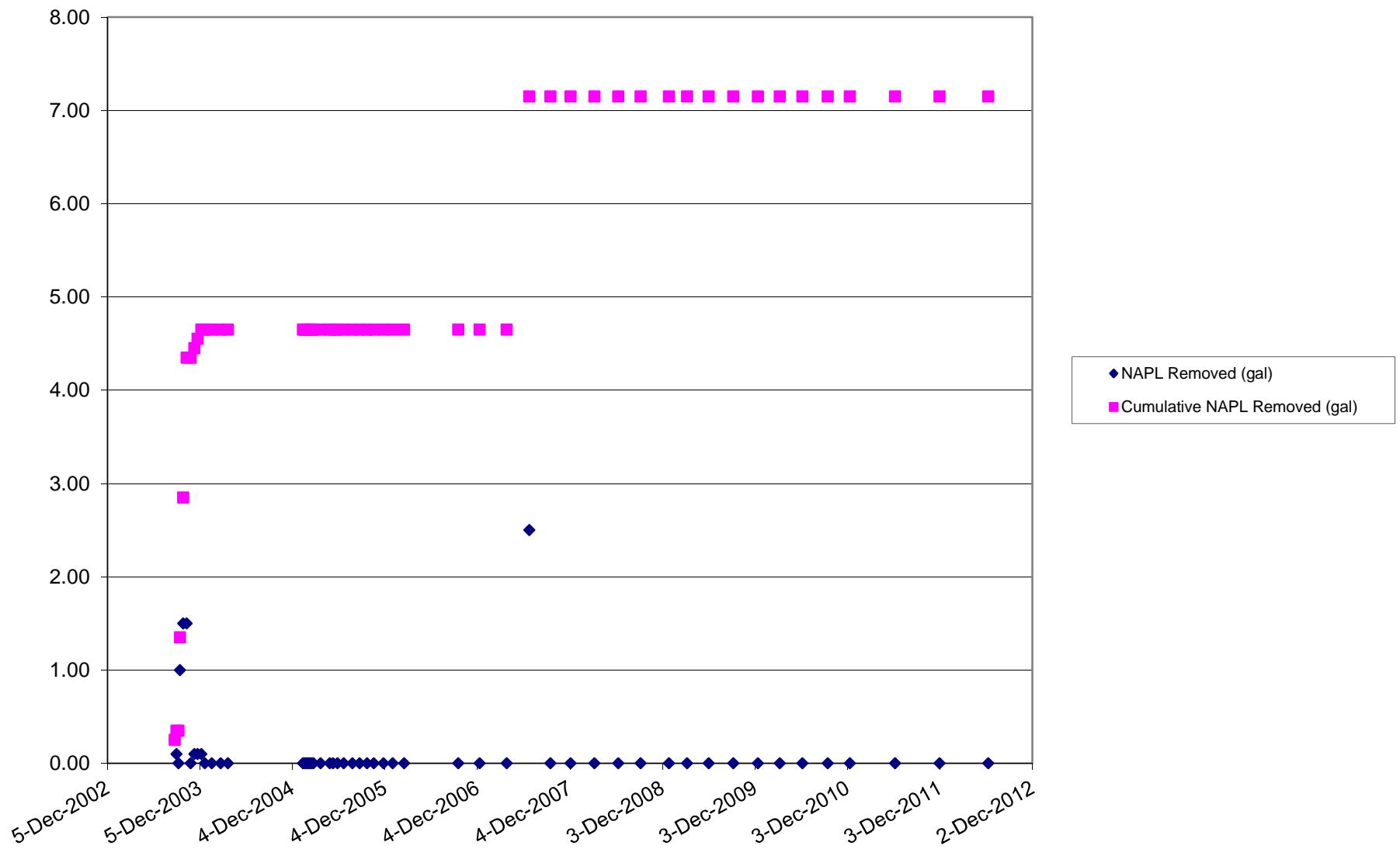
Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

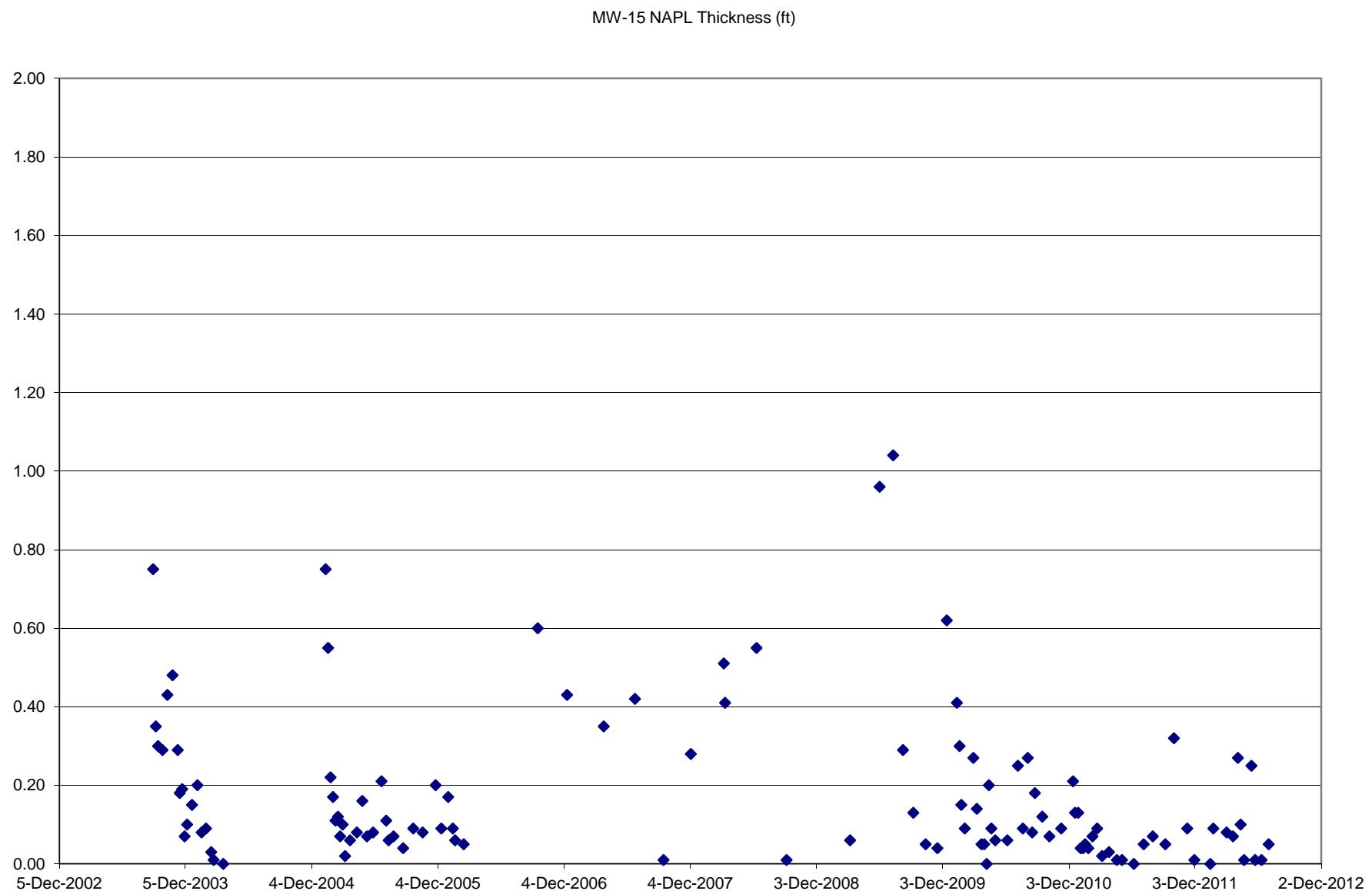
## **Appendix C**

### **LNAPL Thickness and Recovery Trend Plots**

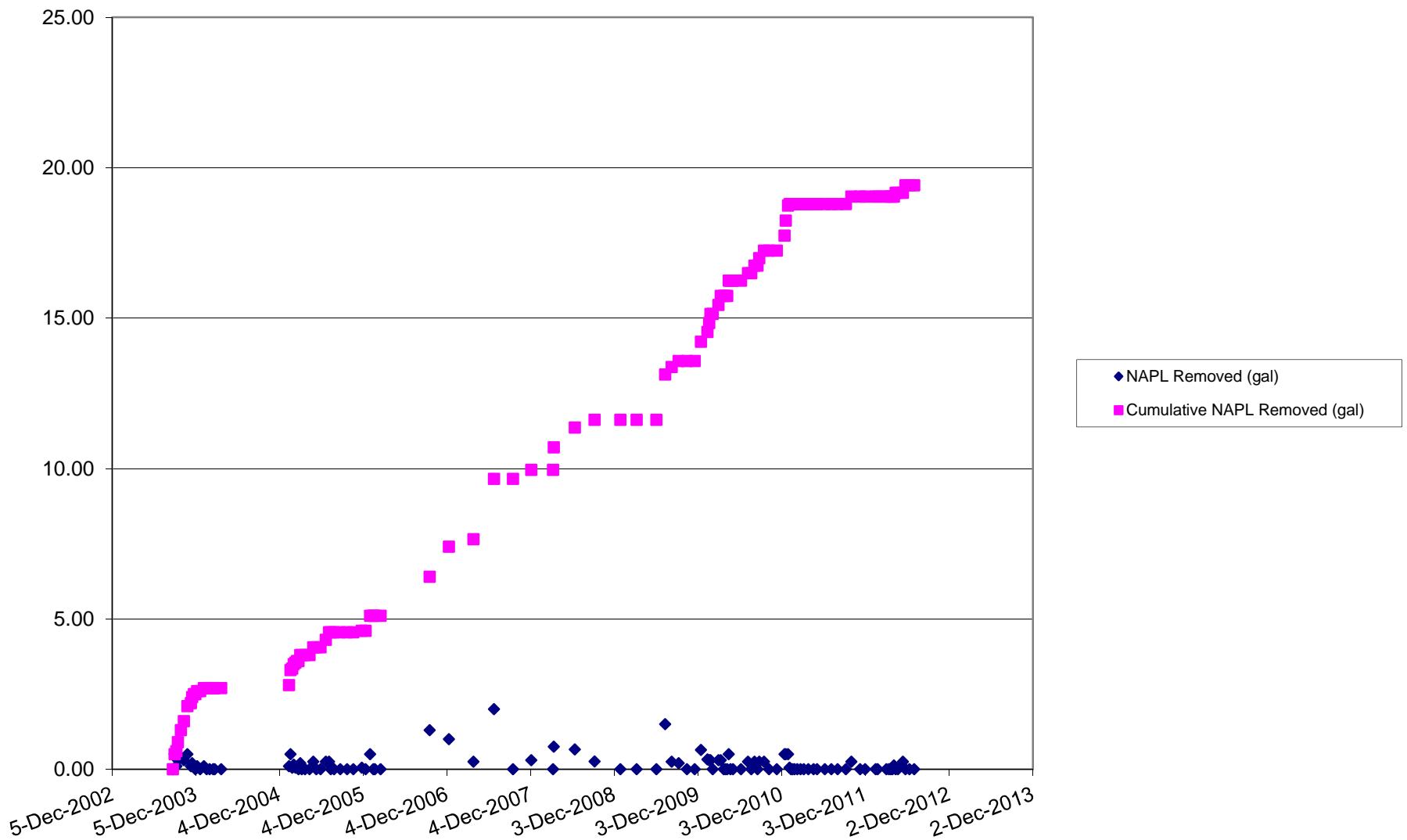


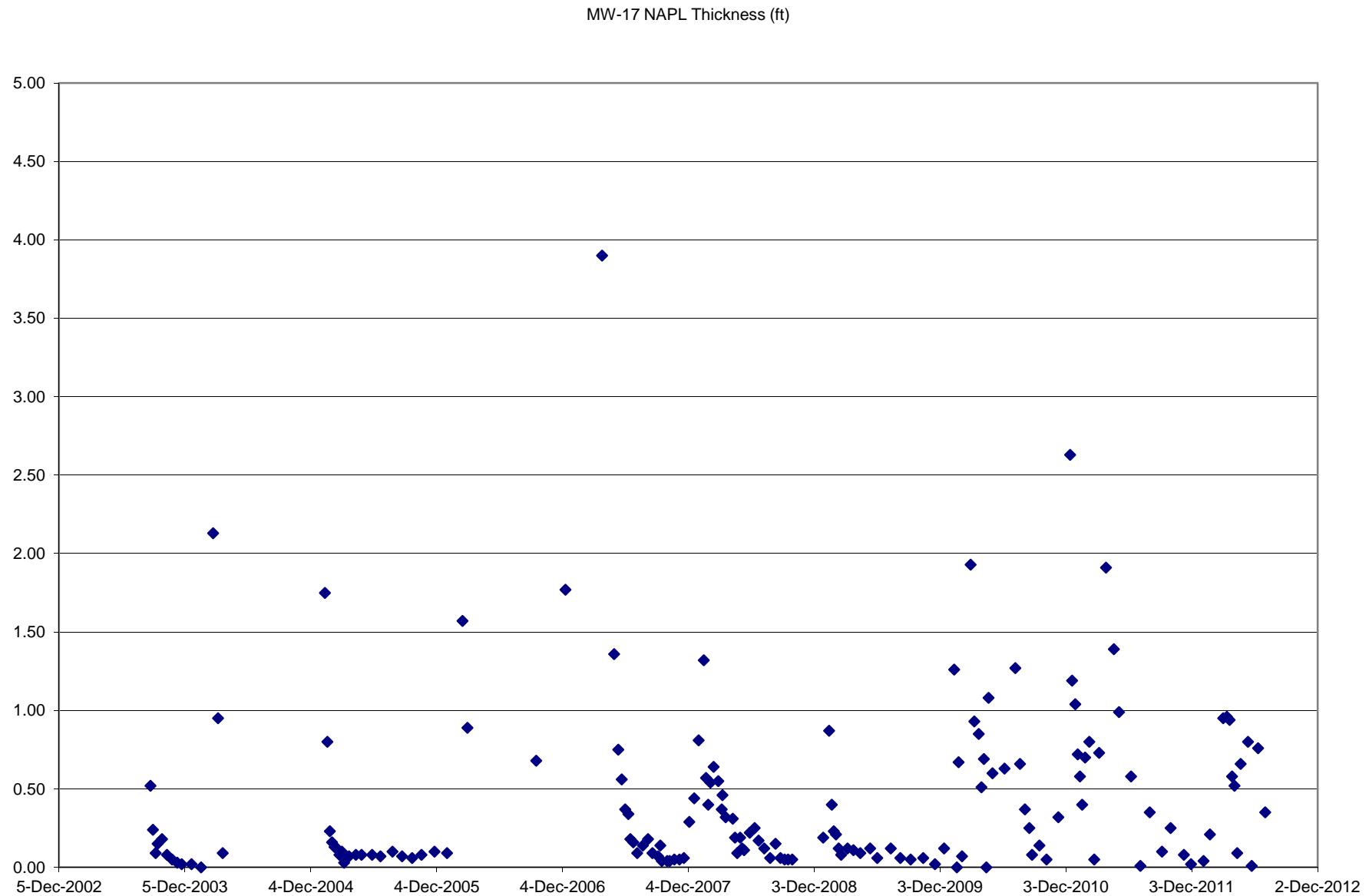
## MW-14



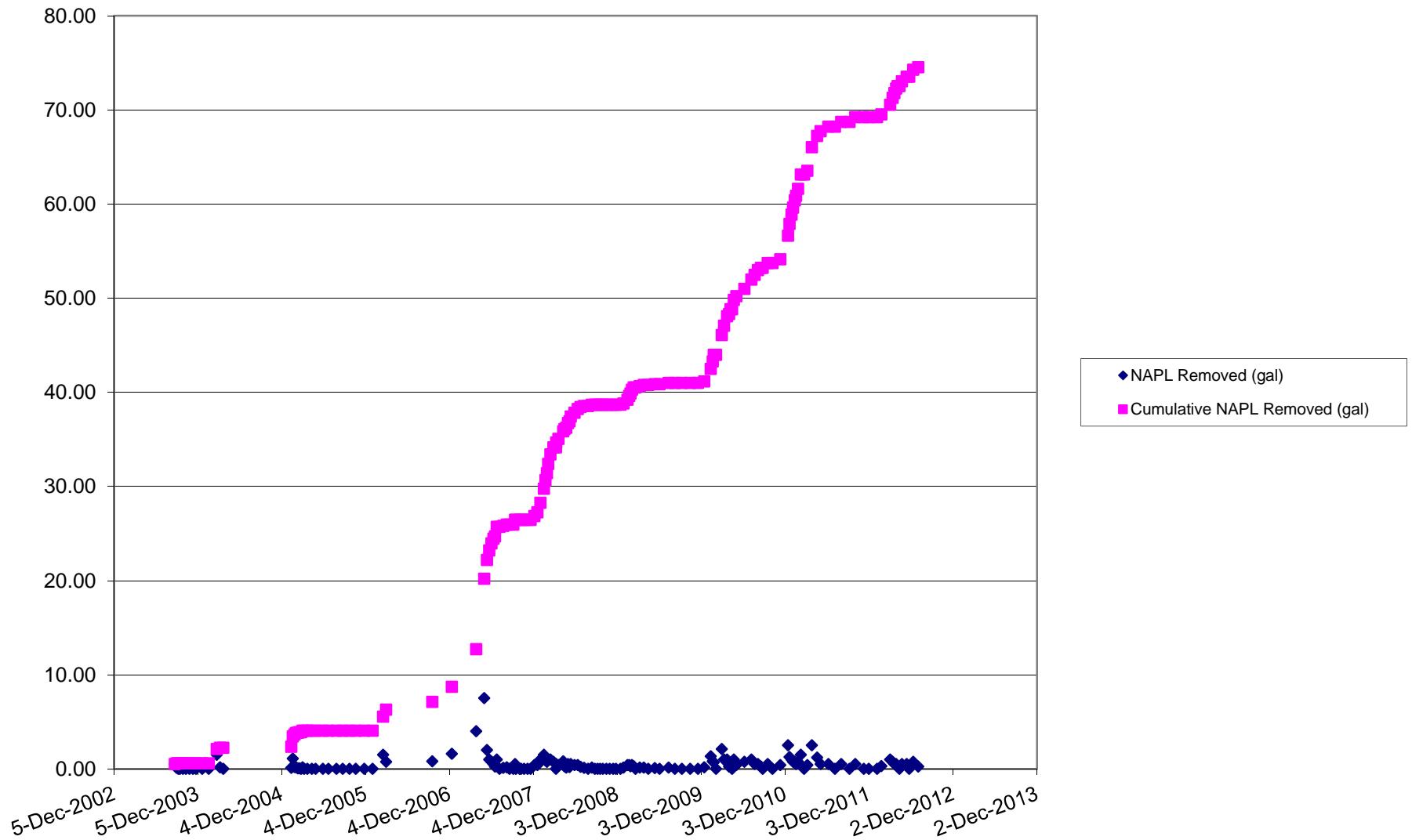


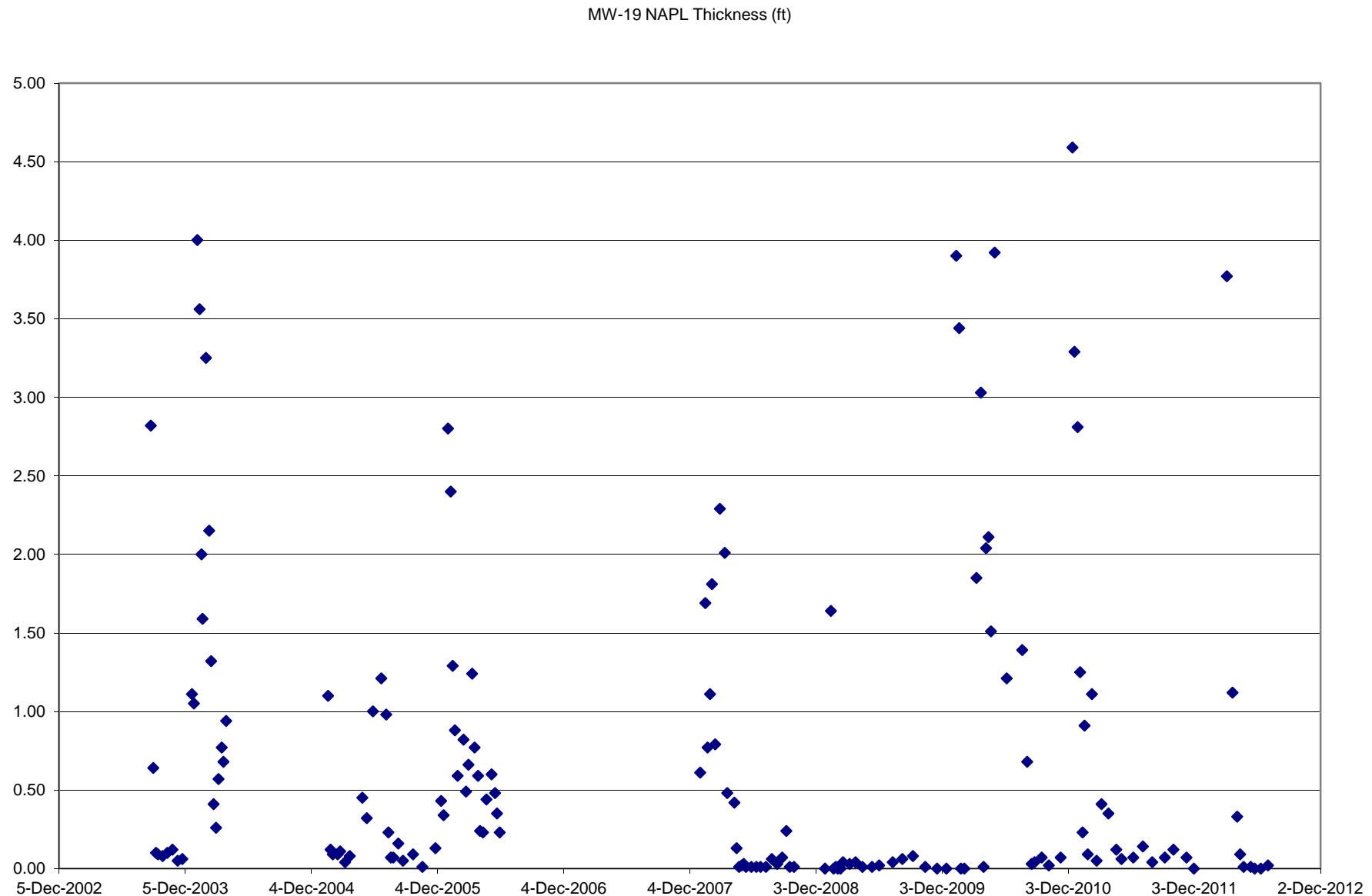
## MW-15



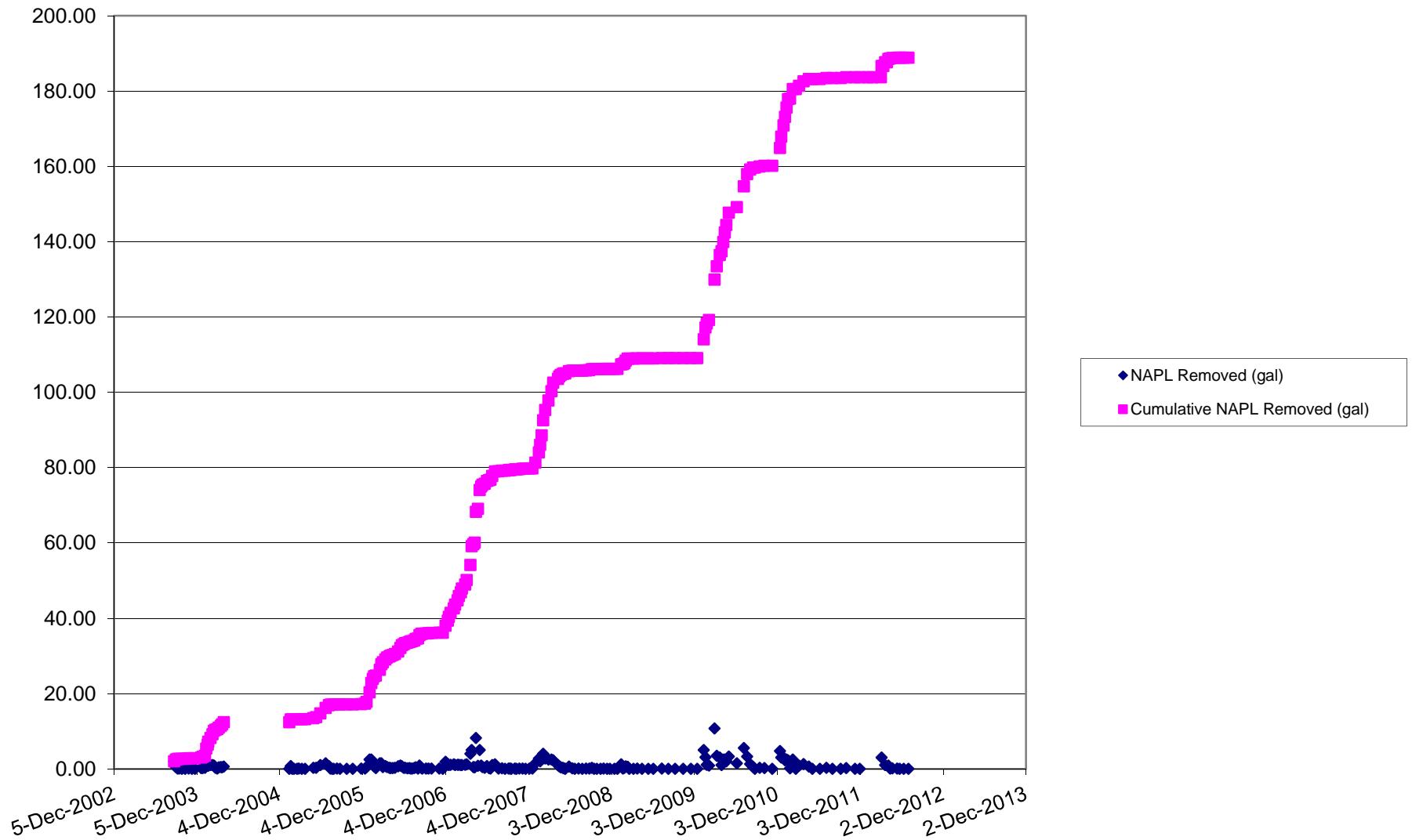


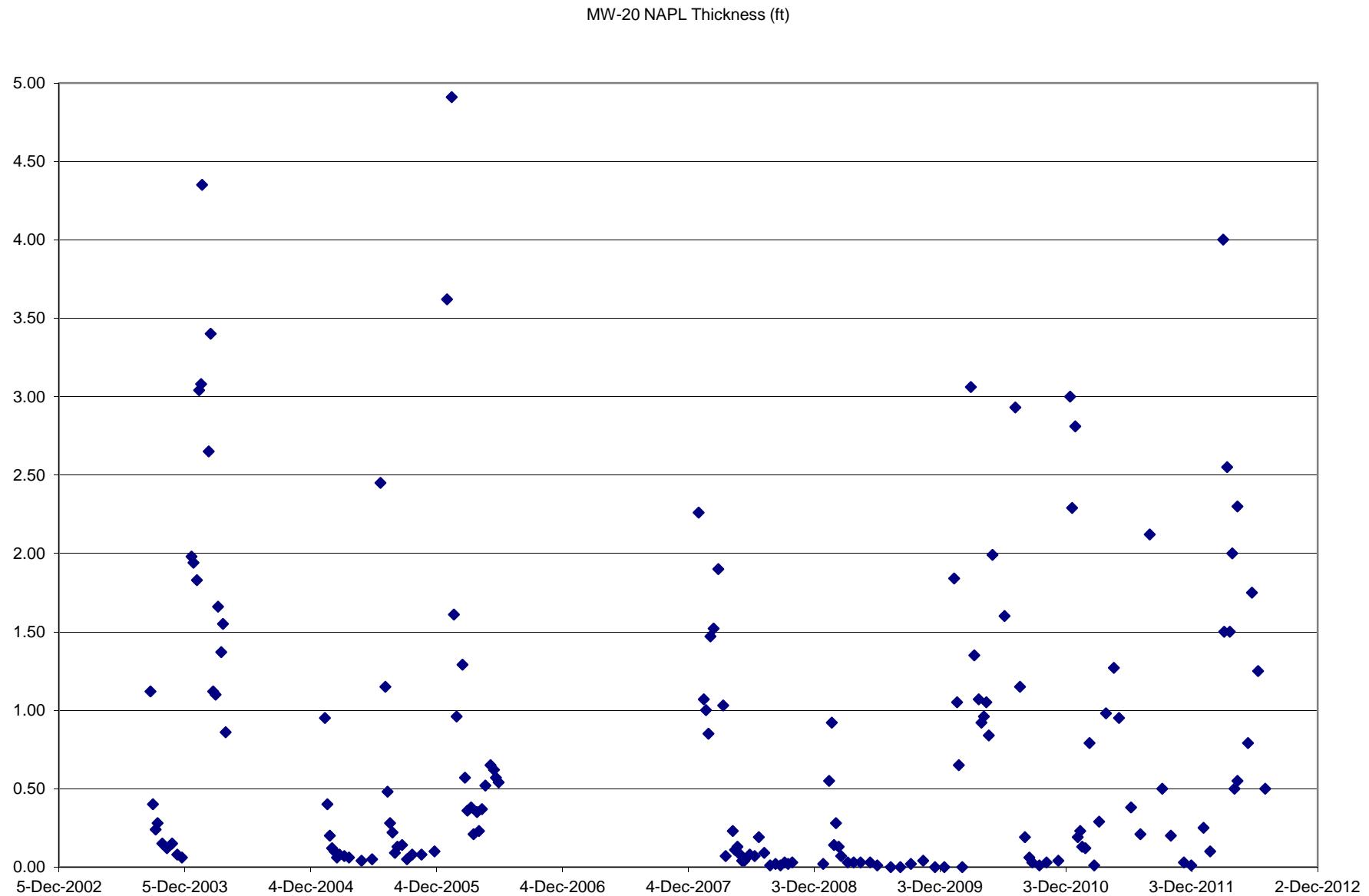
## MW-17



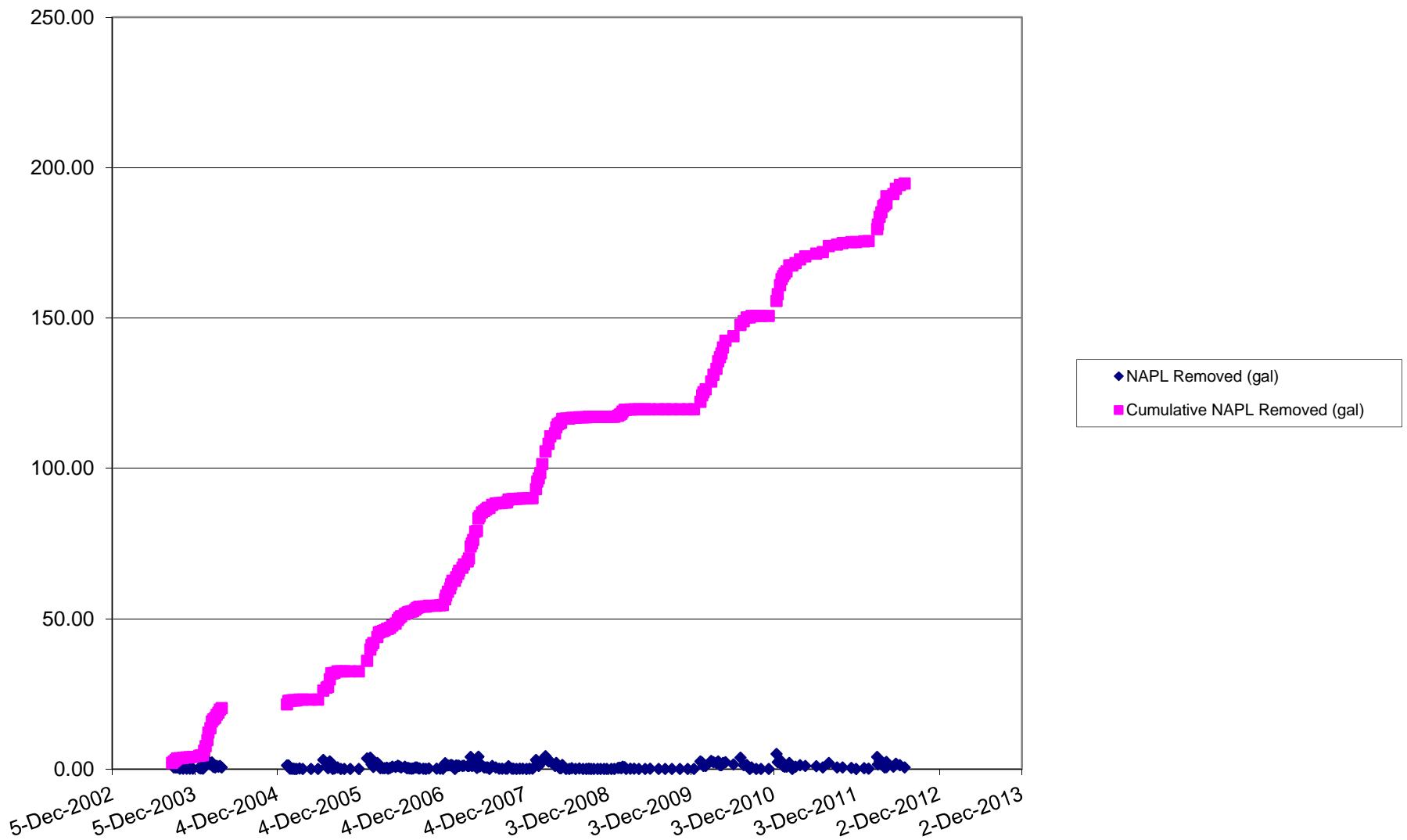


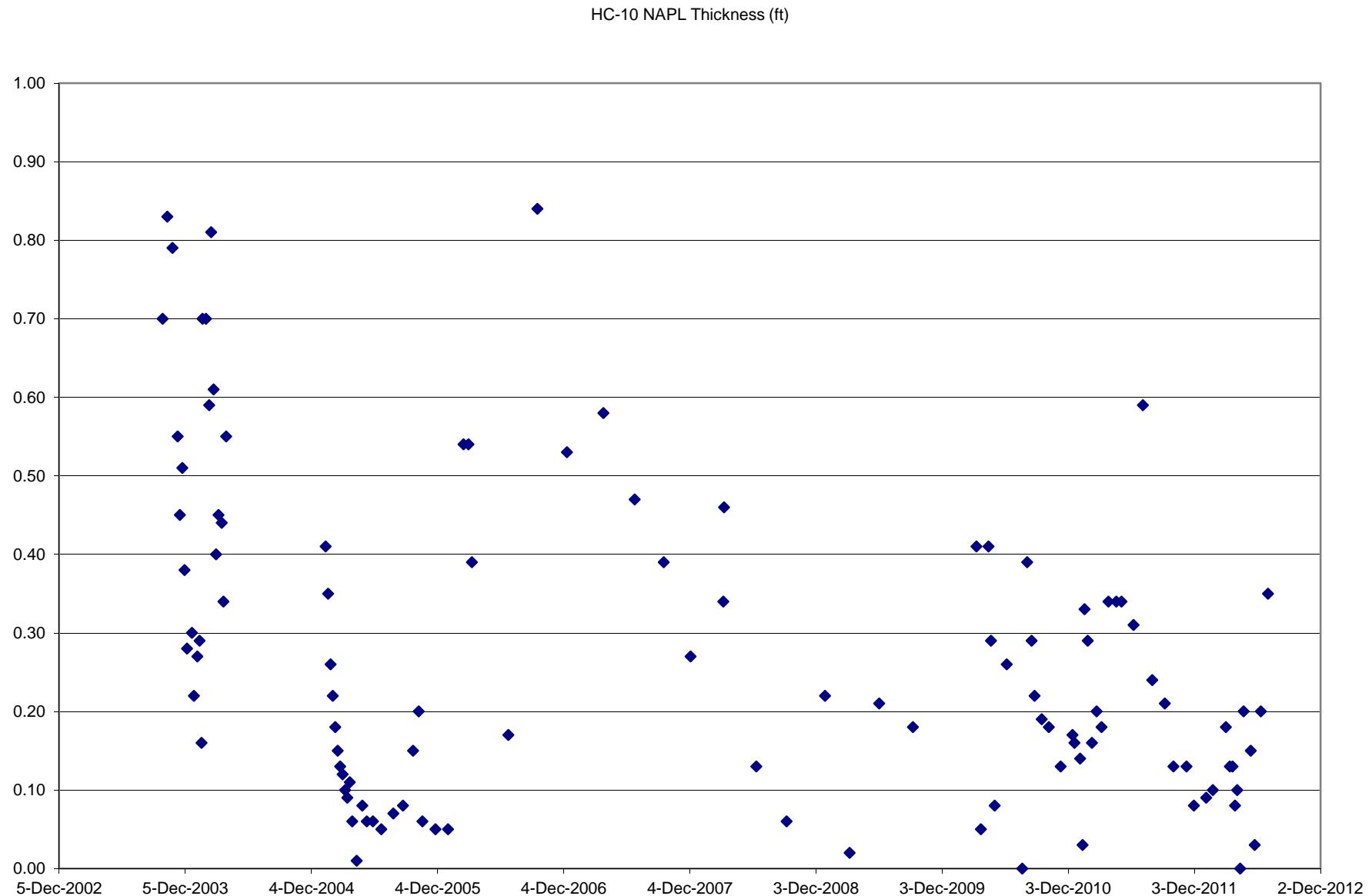
## MW-19



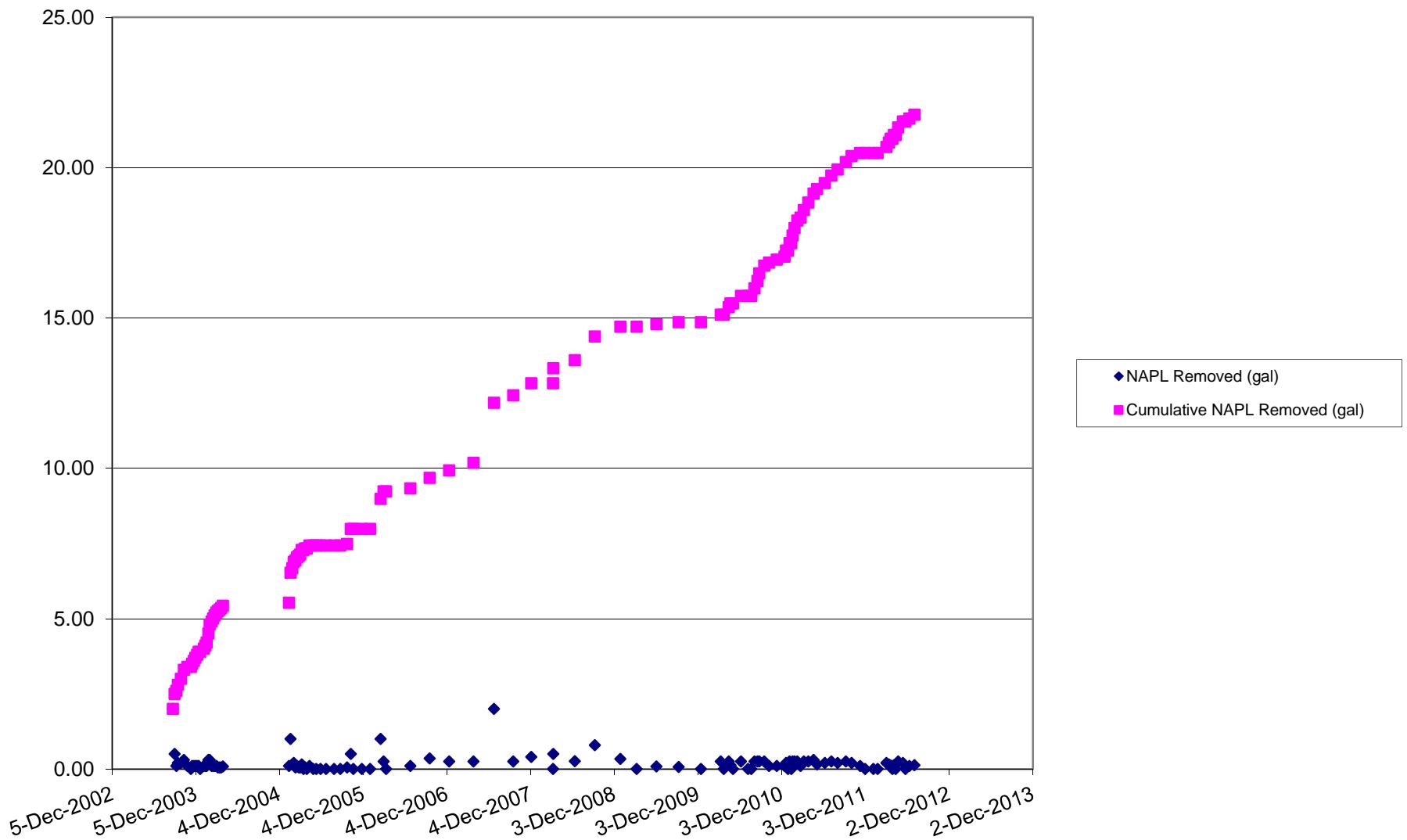


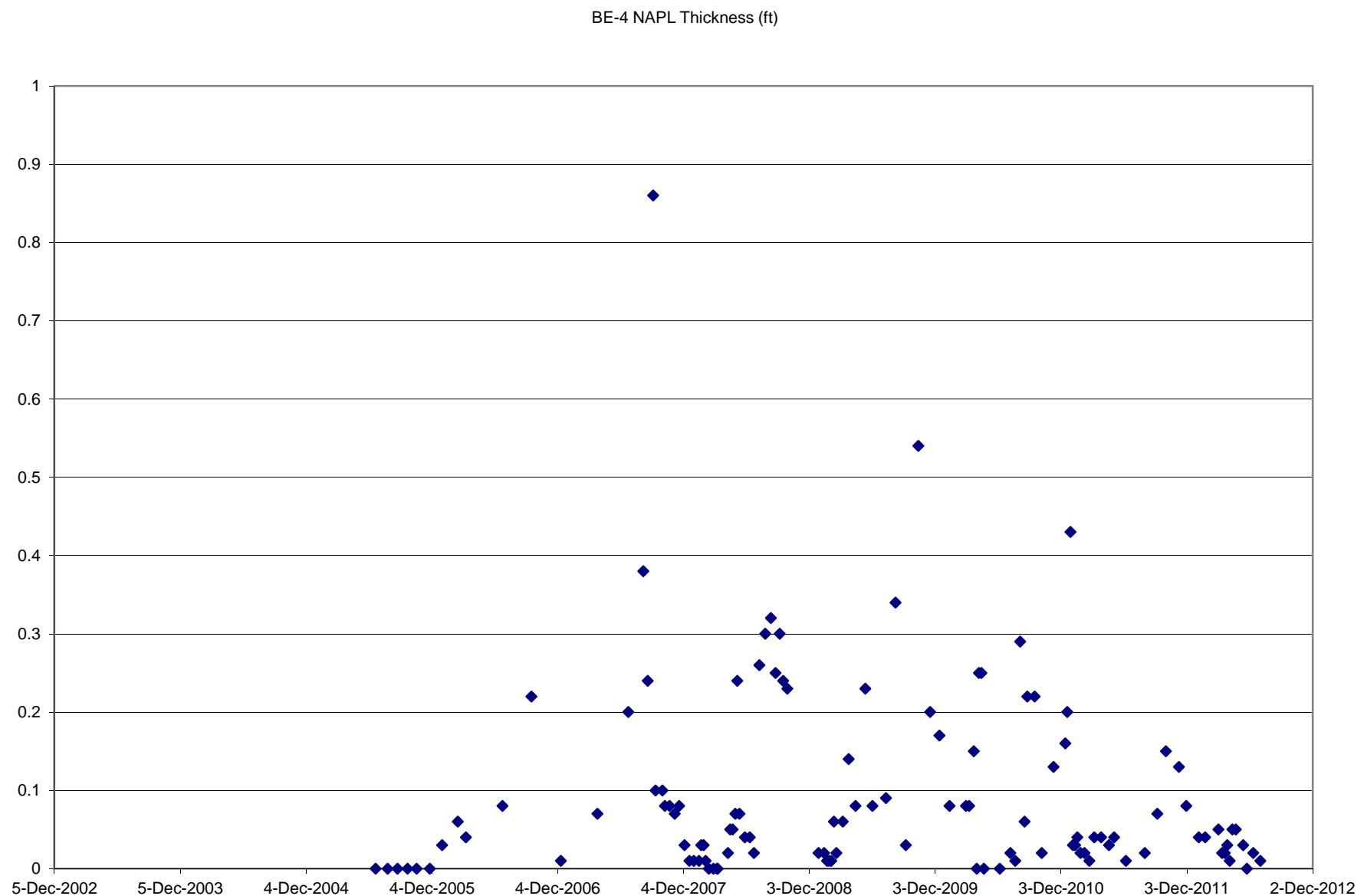
## MW-20



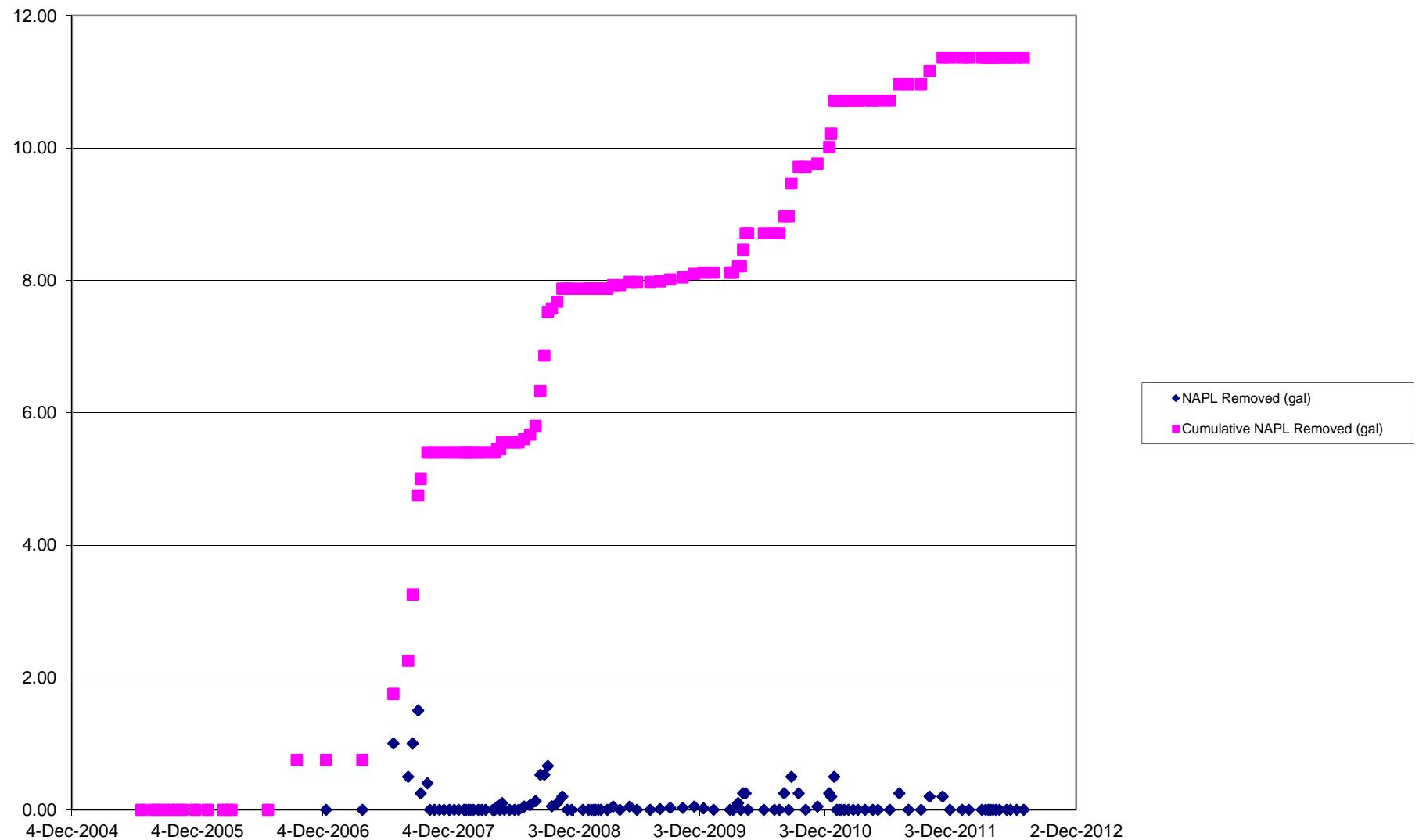


## HC-10





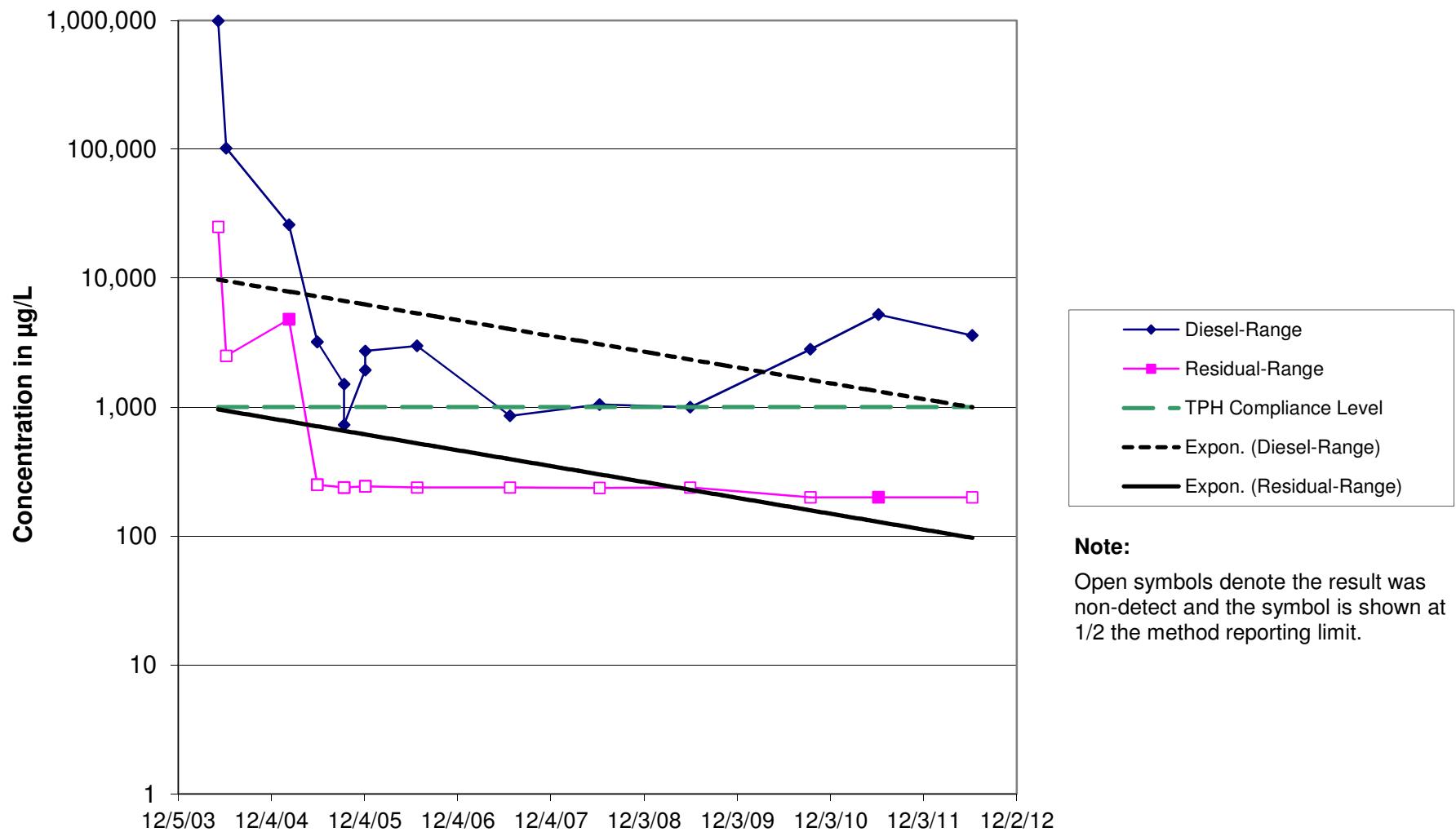
## BE-4



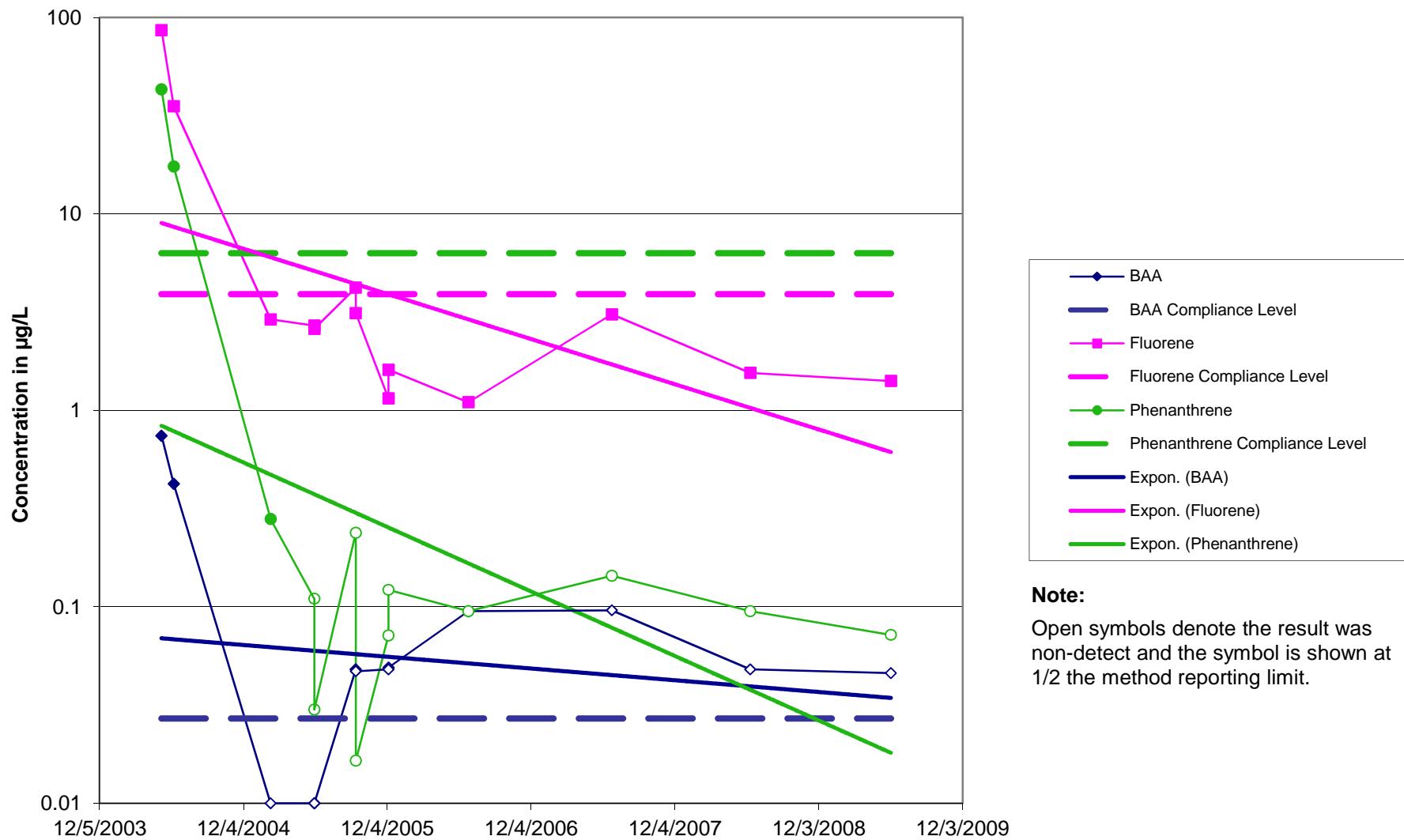
## **Appendix D**

### **Chemical Concentration Trend Plots**

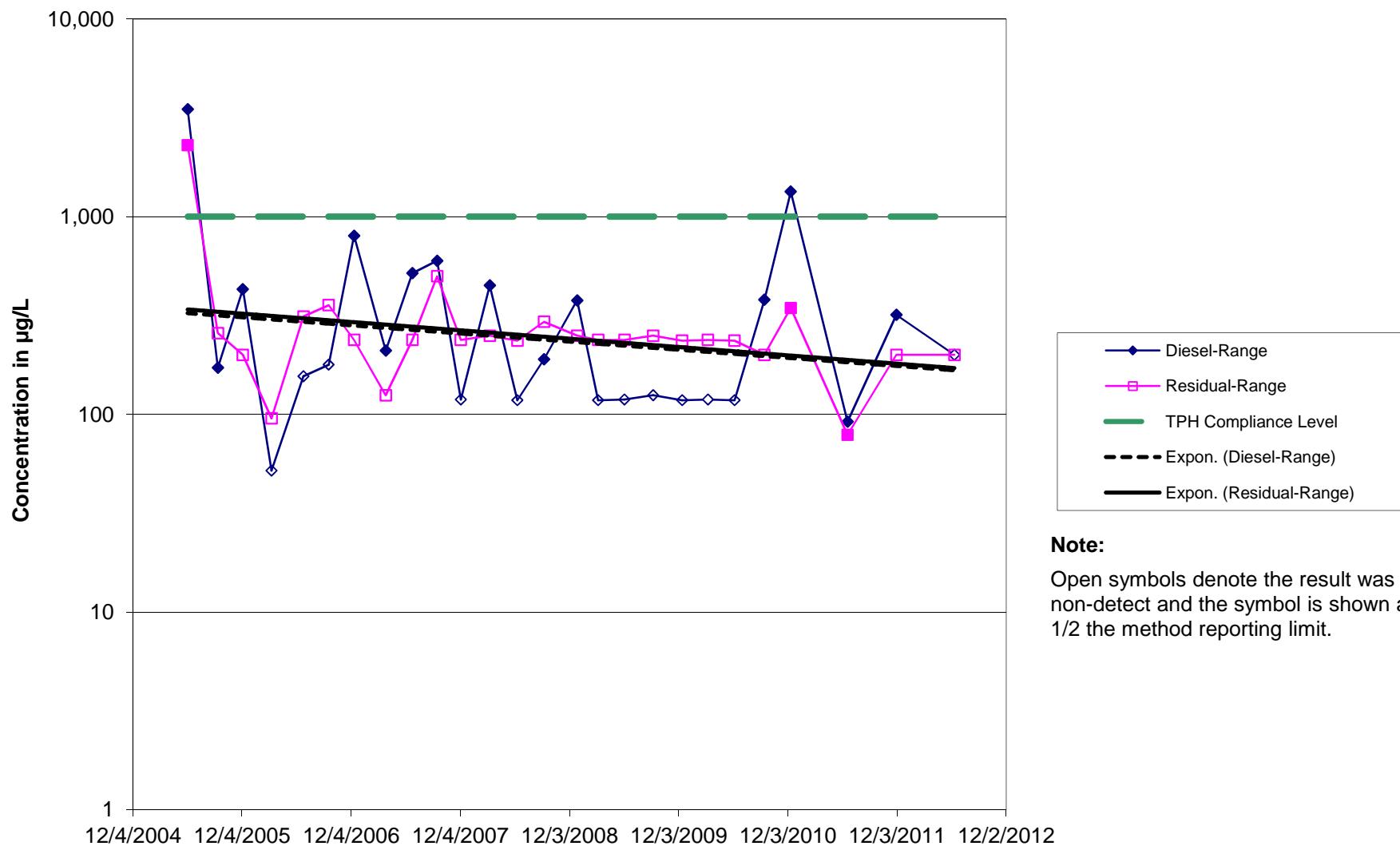
## HC-5



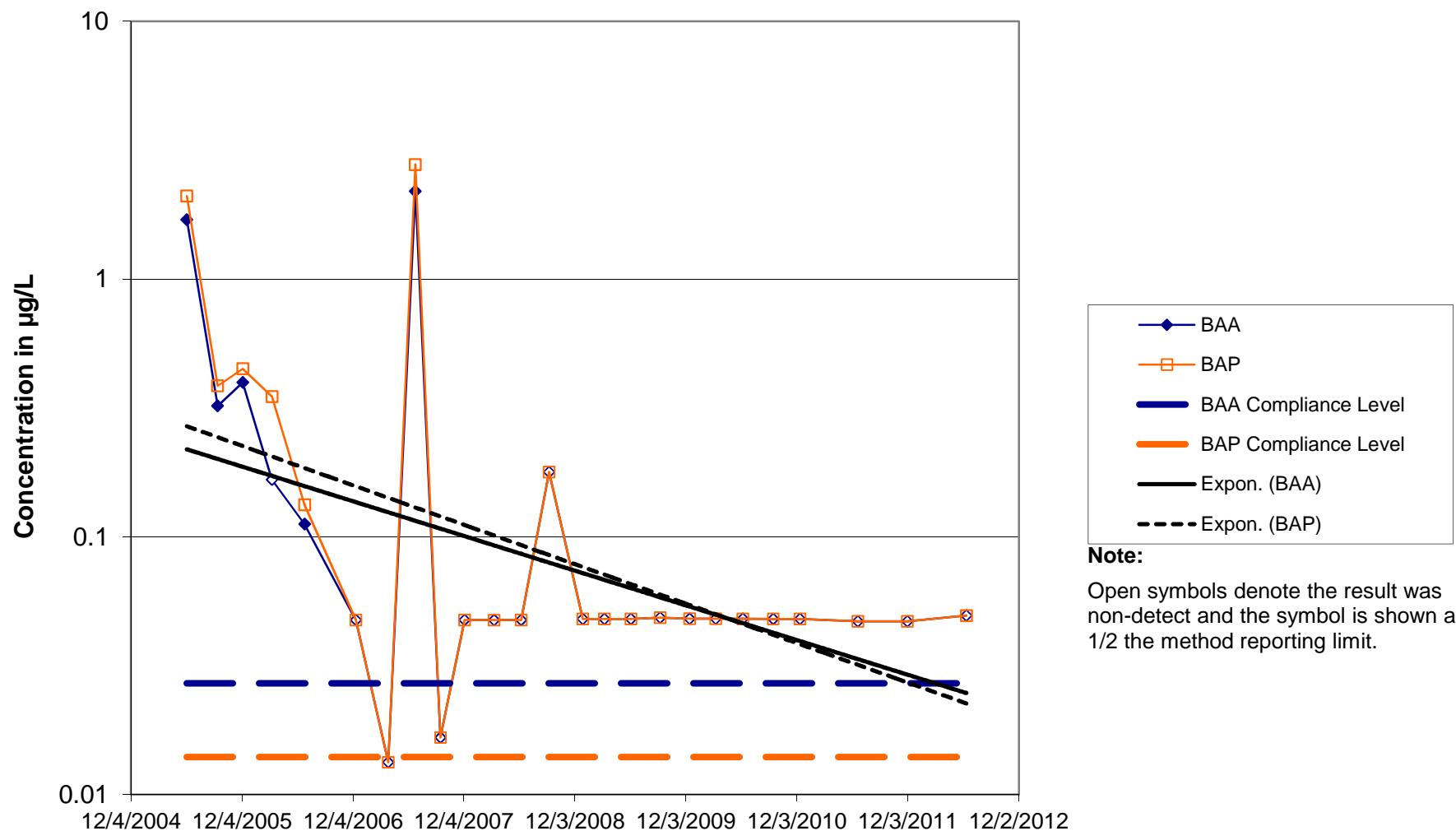
## HC-5



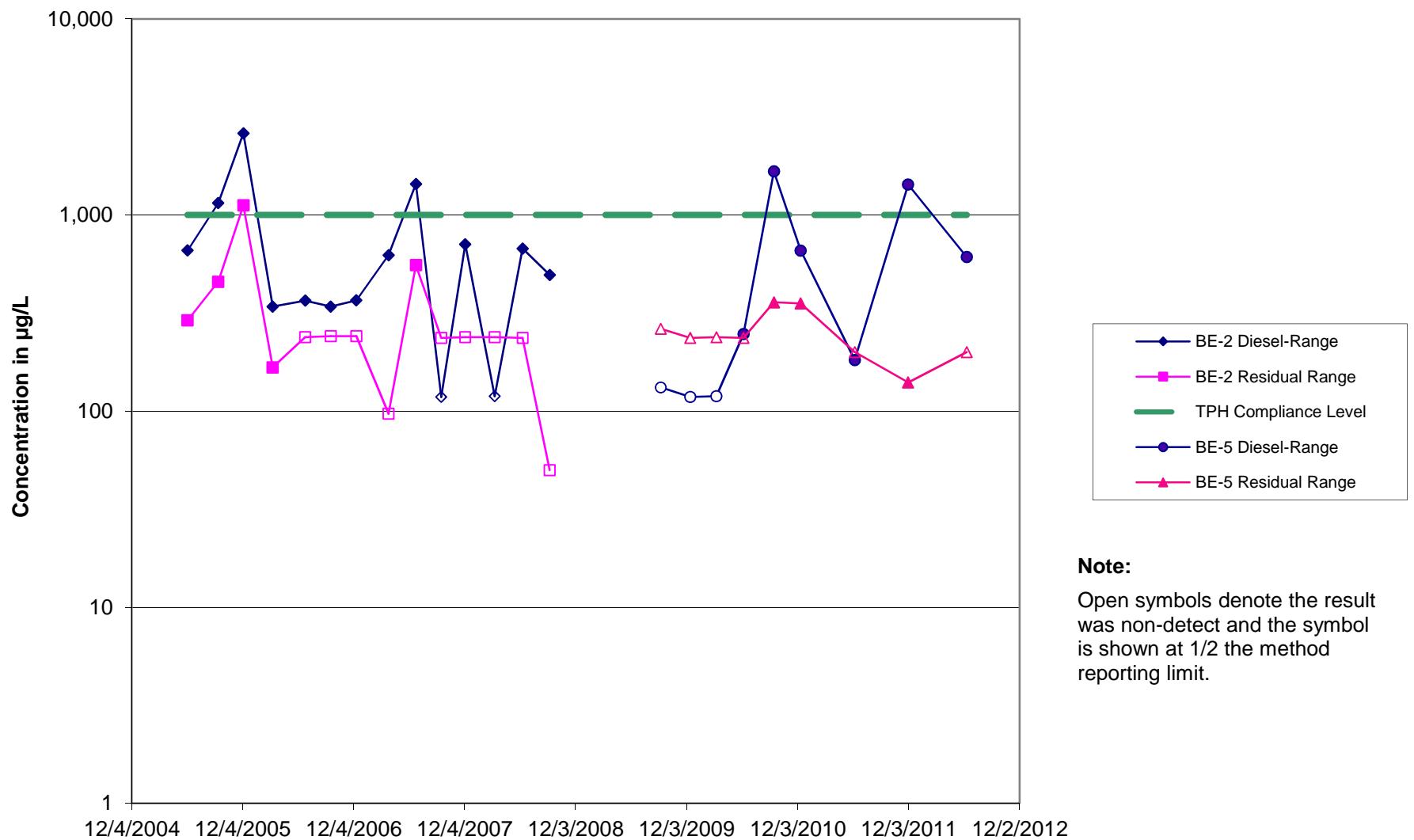
## BE-1



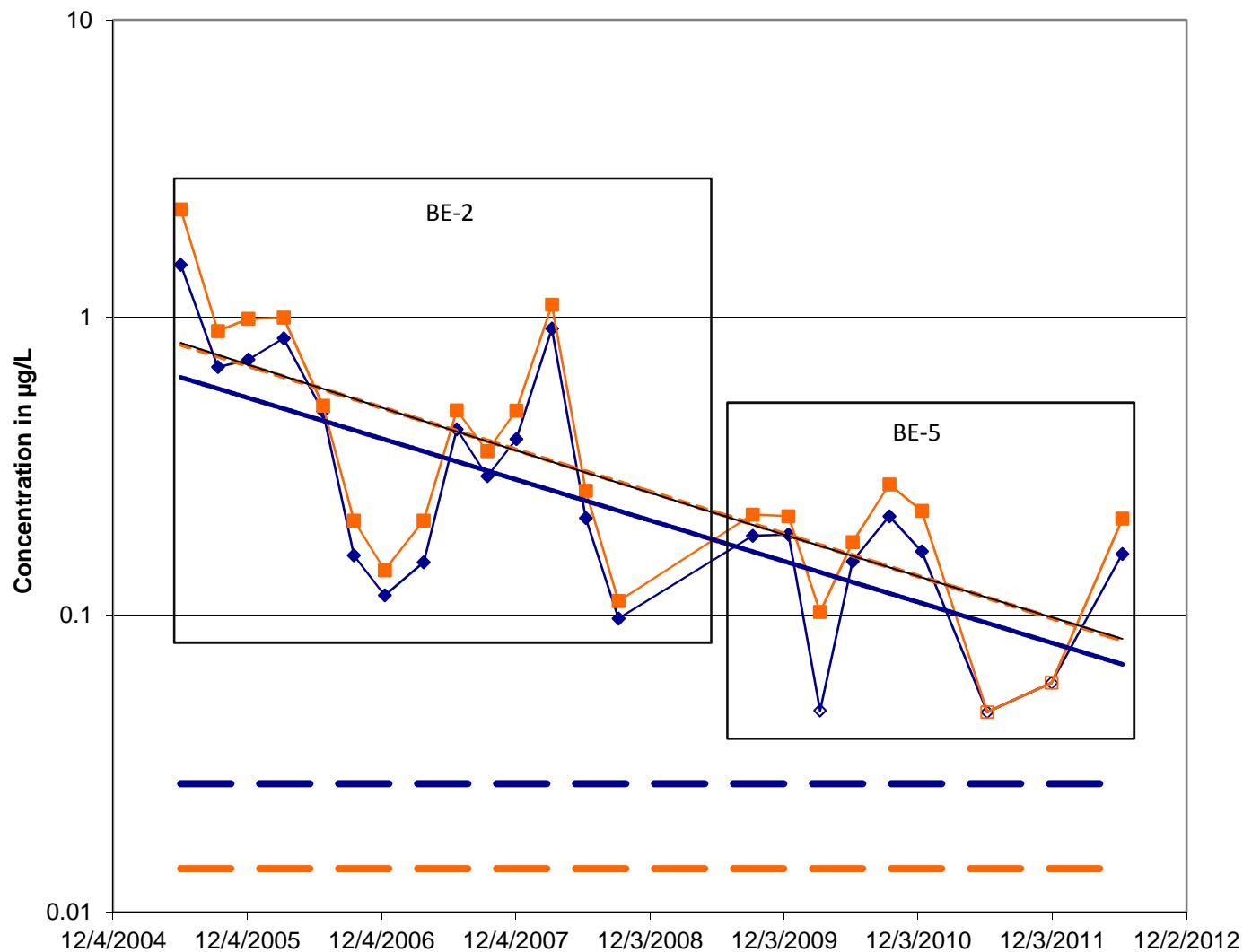
## BE-1



## BE-2 and BE-5



## BE-2 and BE-5

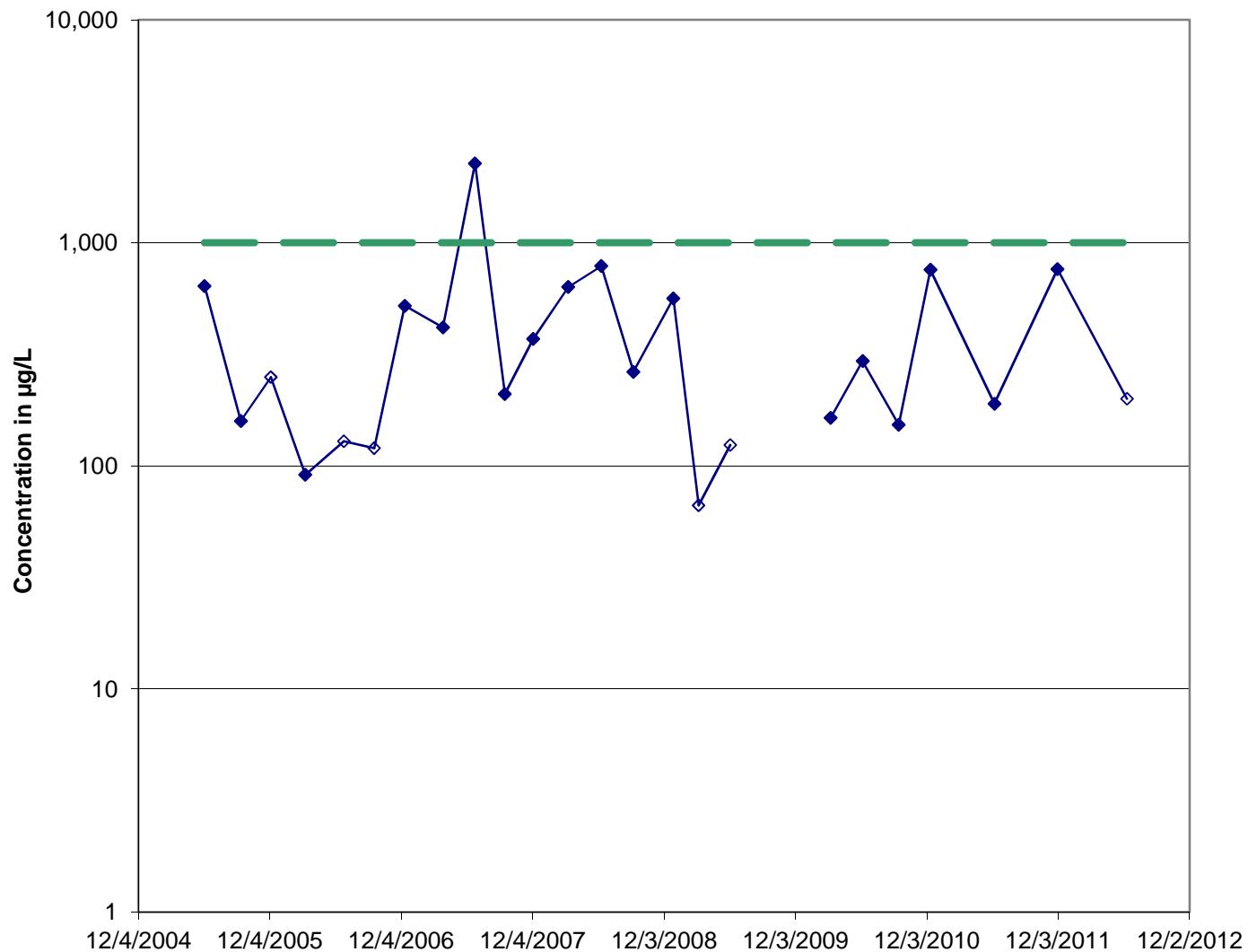


- ◆ BAA
- BAP
- BAA Compliance Level
- BAP Compliance Level
- Expon. (BAA)
- - Expon. (BAP)
- Power (BAP)

**Note:**

Open symbols denote the result was non-detect and the symbol is shown at 1/2 the method reporting limit.

## BE-3



**Note:**  
Open symbols denote the result was non-detect and the symbol is shown at 1/2 the method reporting limit.

## BE-3

